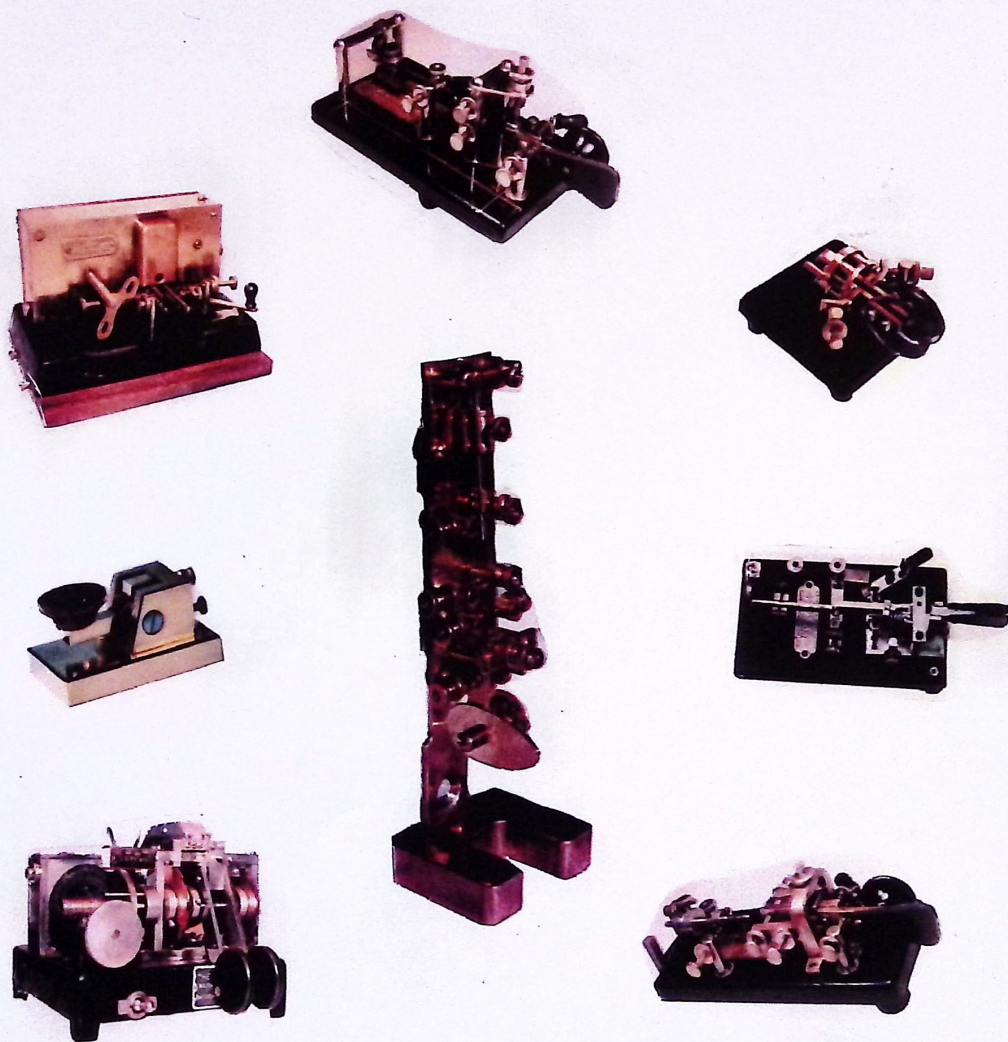


KEYS II: THE EMPORIUM

The World's Most Admired Keys – New And Old



By Dave Ingram, K4TWJ

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WELCOME TO THE KEYS EMPORIUM!

This book was inspired by numerous requests for a sequel to my popular "Keys, Keys, Keys" book published a few years ago. Rather than continuing with "more of the same" (although that expansion would have made a terrific book in itself), however, I pulled out all the stops to bring you views of the world's most admirable keys. Indeed, this blowout collection features many keys never before seen in publication! It includes hand keys, bugs, fully automatic bugs, paddles, verticals and miniatures in both old and new categories. Most of the older keys are collector's prides; most of the new (and available right now) keys are well on their way to becoming modern classics. Combined, they make an absolutely incredible collection I can only describe as a "keys emporium."

Webster's dictionary describes an emporium as *a place where a wide variety of items are displayed, sold, or exchanged* rather than being a book, but keep an open mind and consider the following points. Radio amateurs (and especially CW/key enthusiasts) are located throughout the world rather than being in one area that can be served by a "fixed" emporium. Rare keys seldom appear on the open market, but they do change hands among collectors when prices are right. Our book thus serves as a newcomer's unique glimpse into the world of exotic keys that often accompanies exchanges. It may also serve as an exchange aid by showing various "items of enticement," gems most of us can only dream of ever acquiring, and glamorous new items that make terrific "consolation prizes." After reading this book and studying its photos, I am sure your enthusiasm for CW will be increased tenfold...plus you will understand why key collecting is so popular today. Enjoy!

At this point, I wish to thank all the friends and fellow collectors who shared photos included in this book. That list includes David Combs, W5VJW; Bill Holly, K1BH; Gil Schlehman, W9WDY; David Pennes, WA3LKN; Robert Butt, N1KPR; and Mike Zbrozek, K8XF. Thanks also to Stan Hails, W9WBL; Gordon Crowhurst, G4ZPY; Engimar Wenk, DK1WE; Klaus Gramowski, DL7NS; Steve Nurkiewicz, N2DAN/4; and Felton Mitchell, WA4OSR for photos and info on their presently-available keys. Finally, special thanks go to my XYL Sandy, WB4OEE, for all the coordination, planning, typesetting, layout and artwork associated with self-publishing this book. She had a good knowledge of keys at the beginning; now she is a "whiz!"

Good luck on building your own special variety of delightful keys, and remember our advice in the final/"Emporium section" of including an SASE when writing us. Here's hoping we QSO on the air during the near future!

73,

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CHAPTER 1

CLASSIC HAND KEYS

Our showcase of telegraphic instruments opens with a fascinating variety of hand keys collectively reflecting over 100 years of Morse code communications. Many of these items are genuine collectors' prizes and actual pieces of radio's proud history you can hold in your hand. Realizing that fact, I invite you to use your magnifying glass to study each key's design and workmanship while I discuss its main points of interest. Better yet, kick back and visualize using some of these keys with your own rig today. Now that would be ham heaven for sure.

Hand keys accurately symbolize our grass roots beginnings, plus they still reign high in popularity today. Why? They are easy to adjust and use, handle any rig's voltage and keying polarity, and do not require batteries or external power for operation. Older keys add a warm classic touch to any shack, and new keys are glamorous from any viewpoint. Every radio amateur needs at least two beautiful

keys to compliment his or her station! Even operators using only voice modes need a key for transmitting a signal to check rig output and measure antenna SWR! Have we convinced you keys are as vital as they are beautiful? Great! Get ready for some views of real world-class keys, and read on!

Vail's Lever Correspondent

Our first spotlighted item is a modern-day replica of the very first big-time telegraph key: Vail's famous Lever Correspondent shown in Photo 1-1. The original model of this key and its forerunner, Vail's basic Correspondent (which is little more than a spring metal strap with a knob mounted on a wood base) are presently on display in the Smithsonian Institute. Vail's keys were made during the 1840s and were quite basic in design (notice the non-adjustable arm spring and flat end without a knob), but they kicked off an era of creative

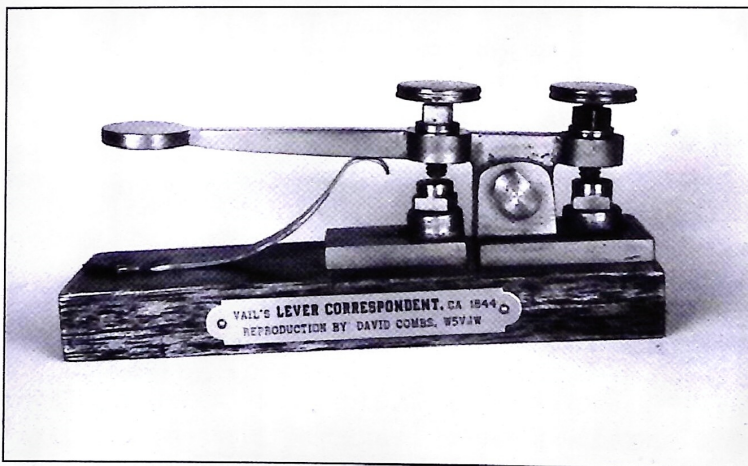


Photo 1-1 This magnificent reproduction of telegraph's first key was made by W5VJW as a labor of love (for CW). Original Vail lever Correspondent is presently on display in Smithsonian institute.

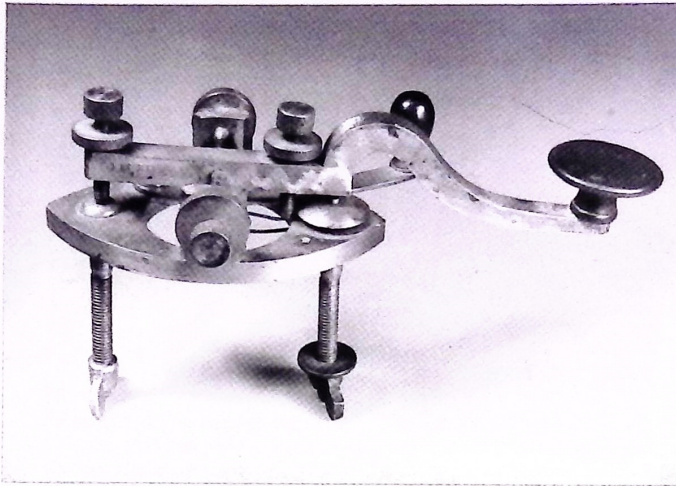


Photo 1-2 G. M. Phelps Camelback. This elegant hand key was made during the 1860s and used in many telegraph stations of the old West. Key owned and photographed by Bill Holly, K1BH.

designs that continues strong even today.

David Combs, W5VJW, became captivated by Vail's Lever Correspondent after seeing it in a traveling tour from the Smithsonian. He pulled some strings to get exact measurements from original sketches, then enlisted the help of a local brass and woodworking facility to make this exact-to-the-finest detail reproduction. Clever!

Camelbacks

As telegraphy grew and landlines began spanning the country, every method possible was tried to reduce key operating fatigue. The Camelback was not an earth-shaking solution, but its variation in design was a first step in the right direction of improved key styles.

One of the most elegantly designed and machined Camelback keys I have seen is the G. M. Phelps item shown in Photo 1-2. This gem was made during the

1860s, it is all brass, and has a very accurate pinion assembly. The key's lower contact also sits on a neat oversized pedestal. Notice the long screws extending below the key. In addition to securing it to a desk or table, the long screws were also connecting terminals. A relatively large number of Camelback keys similar to the one in Photo 1-2 were manufactured by various firms, but due to their age they are now scarce.

An interesting variation of the Camelback is the Chubcock key shown in Photo 1-3. This item was also made during the 1860s and it really looked like old-time telegraphy. Notice the arm's pivot point is slightly off-center compared to a regular key and its upper keying contact is part of the arm. The adjustments for both gap and tension are fitted on the far end of the arm rather than being balanced with one on each side of the fulcrum. Needless to say, the Chubcock key is a genuine classic and true conversation piece.

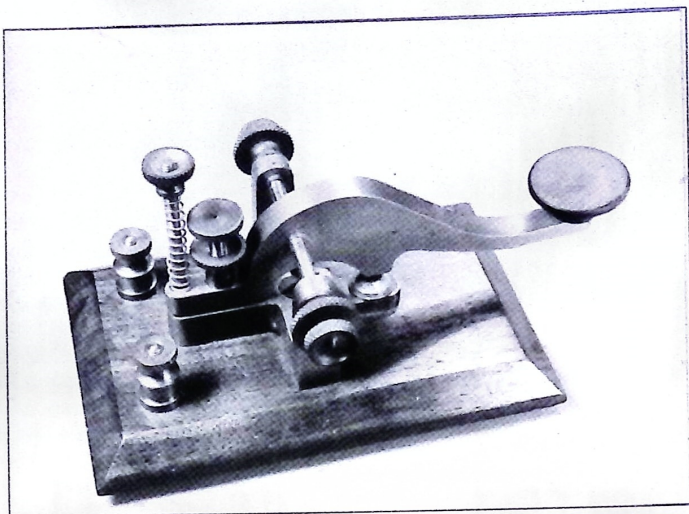


Photo 1-3 The Chubcock key is another variation of the Camelback. Made during the 1890s. Note tall screw and spring at rear used to set arm tension. Key owned and photographed by K1BH.

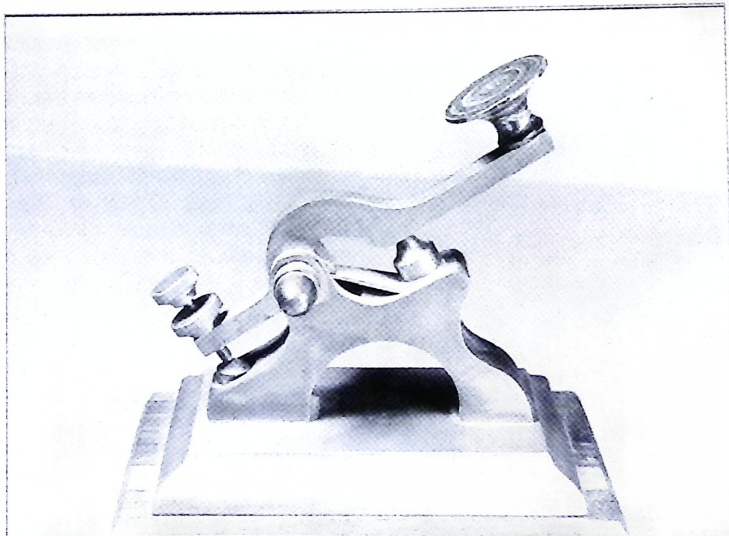


Photo 1-4 Callbox-type Camelback key mounted on flat base and standing at 45 degree angle. Figuring out the proper arm (or leg!) position for using this critter is a challenge! Key owned and photographed by Bill Holly, K1BH.

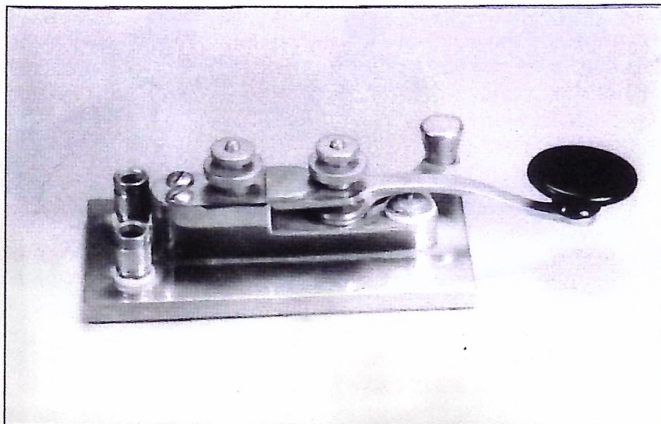


Photo 1-5 The Steiner Key was made by Western Union during the 1870s, and it is truly a piece of telegraph history you can hold in your hand. Notice the arm attaches to the front gap-adjusting screw and the rear screw sets tension on the arm's securing strap. Key owned and photographed by Bill Holly, K1BH.

Another quite unusual style of Camelback is shown in Photo 1-4. At first glance, the hump may not be apparent because of the key's 45 degree mounting angle, but it begins right at the pivot point and ends at the arm's keying contact. Why the strange mounting angle? Who knows! Maybe it was designed for left-foot operation at night with a leg hanging off the bed. Seriously, however, it is probably a call box or alarm box key designed to actuate a distant buzzer rather than produce readable code on a Sounder. This seems logical as the key's tension is not adjustable and its (very stiff) spring looks like it was salvaged from a Colt 45 revolver. Wow, what a key!

Steiner Key

The neat little item shown in Photo 1-5 is a Steiner key made by Western Union during the 1870s. The mechanism is nickel-plated brass and originally bolted to an operating desk via long leg screws extending below the key.

A previous owner shortened the screws, added insulation, and mounted the mechanism on a matching nickel-plated brass base. Notice this key does not have a usual center fulcrum or middle pivot point. Its arm is attached directly to the upper-front gap-adjusting screw. The arm is also secured in place by a spring strap attached to the key's main area via two slotted screws. The strap bends up to fit under the main arm, then tension is varied by the rear set screw. Study this arrangement a few minutes and you will see the keying arm pivots from its rear. Notice also the circuit-closing lever is mounted under the arm's support screw and mates with the key's base contact when pulled toward the knob. Interesting!

The Marconi 86

Another outstanding classic from eras past is the enclosed-mechanism beauty owned by N2WR and shown in Photo 1-6. This key's lever sports an unusual wishbone design that straddles

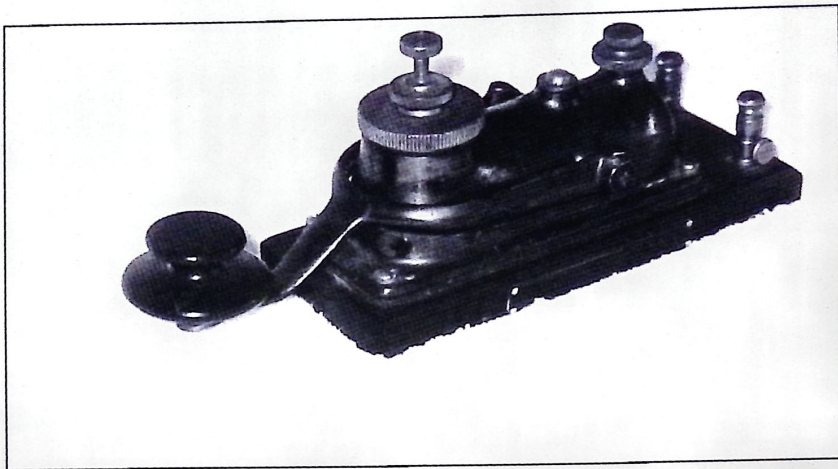


Photo 1-6 The Flame Proof Marconi 86 key. Item has a wishbone shaped lever and fully enclosed mechanism to protect operator from shooting sparks. Key owned by N2WR.

the middle section and bolts to side rods operating the inner mechanism. Top-mounted set screws with locknuts vary arm tension and gap, plus there is even a middle screw for setting pivot pressure.

Rear binding posts with side locknuts secure wires connecting between the key and its associated transmitter. Notice this gem's interesting cover. It resembles an old-time steam engine or horse-drawn fire

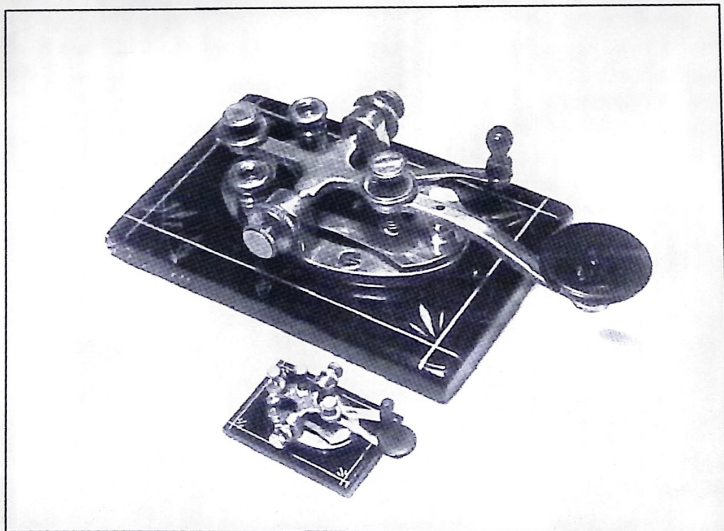


Photo 1-7 The ever-popular J-38 polished to new condition and glamorized with pinstriped base. Key illustrates handiwork of proud owner N1KPR.

pumper. What is the significance? Everyone has their own opinion, but I sense its silent message of "handle with caution" is undeniable!

The side plate on this key is inscribed "Flame Proof Hand Key--1/2 kw. Volts 300 Ampere 5 Cycle 500 Type SE86. Mfd. by Marconi Wireless Telegraph Co. of America." Obviously Marconi keys were made in both Europe and the United States.

The Ever-Popular J-38

Moving toward more recent times, we now highlight the famous J-38 hand key. Since this item was shown "basic style" in my previous "Keys, Keys, Keys" book and it is a reference-key everyone recognizes, I switched to show a couple of "glamorized versions" in this new book.

This arrangement vividly illustrates how a little loving work can turn even a military surplus key into a real eye catcher.

The upper key in Photo 1-7 was removed from its plastic base, completely dismantled, then rigorously cleaned to new condition by Robert Butt, N1KPR. After the working mechanism was buffed with emory cloth and polished with Brasso, the base was pinstriped using Gold Leaf paint and a fine brush. The final results are a key that looks almost too good to use! Lower key in Photo 1-7 is a third-size copy made by N1KPR, and it is exact to the finest detail. Neat!

The Wizard Add-On Key

Have you ever seen a key adapter for a key? Well, check out the intriguing little gem shown in Photos 1-8, 1-9, and 1-

THE WIZARD



A REVELATION IN TELEGRAPH KEYS

Key lever and contacts operate separately and independently. Regular circuit-closing lever serves for both keys.

By giving the screw at the back a mere twist you can send very heavy, very light or mediocre signals over the longest circuit with no extra effort whatever.

You may work the key as "close" or as "wide," as fast or as slow, as you like, without in any way affecting its carrying qualities and though the circuit carries but very little current, it will respond with a snap that is truly gratifying, and every impulse will reach the distant end as though it were in an adjoining room.

No lagging of relay and sounder, which in itself, is one of the chief causes of telegraphers' paralysis. Impossible to produce light signals if adjusted to send heavy and vice versa.

Can be connected or disconnected instantly with any telegraph key, sets perfectly rigid on the table and can be carried in the vest pocket.

If you have lost or are losing your "grip," get The Wizard. A positive remedy.

THE KEY WITH A VELVET TOUCH

Made of attractively polished metal, containing flexible, pure platinum contacts throughout.

Mailed postpaid to any address in the U. S., Canada or Mexico upon receipt of....

\$2.25

Photo 1-8 Copy of original ad on D & K's Wizard as it appeared in The Railroad Telegrapher magazine of yesteryear.

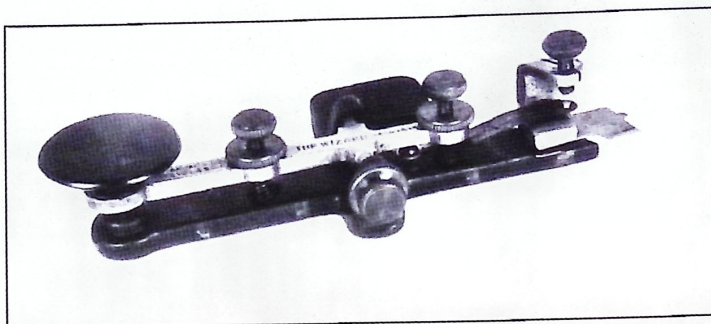


Photo 1-9 The Wizard Add-On Key. Note front connector and clamp that slip onto a regular key's circuit closing lever and long flexible spring contact. Photo courtesy owner W5VJW.

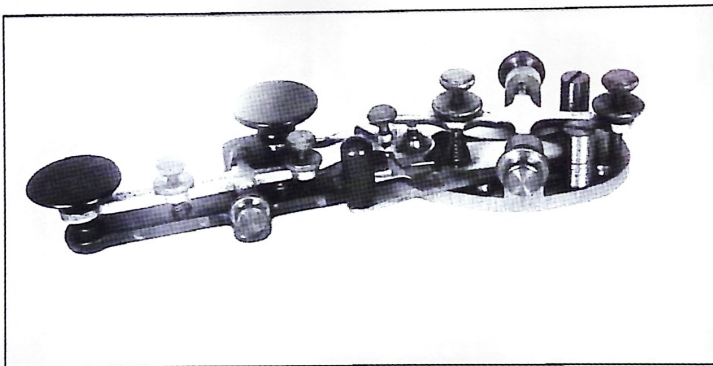


Photo 1-10 The Wizard in position on an open-frame key and ready for use. Either key's lever can be operated as desired. Photo via owner W5VJW.

10. This item was made in approximately 1910 by the D & K Manufacturing Company of Cleveland, Ohio, and its main purpose was easing strain on a telegrapher's "fist" while ensuring solid keying of landlines. The Wizard is a small pocket key with front contacts that slide under the circuit closing lever of a regular open-frame key (like the J-38 or Bunnell's famous "Triumph"). The Wizard's adjustments can then be set for close or wide spacing, heavy or light Morse characters, and the knob's feel stays velvet smooth. An old-timer told me he

actually used a Wizard many years ago and it handled better than any other pump key he ever tried. Fascinating!

The Wizard shown in Photo 1-9 and 1-10 belongs to David Combs, W5VJW. He purchased it in an estate sale 10 years ago, and loves it. Our thanks to W5VJW for sharing views of the Wizard.

McElroy Teardrop Hand Key

As we will discuss in Chapter 2, Ted R. McElroy was a world-famous name in both high speed telegraphy and

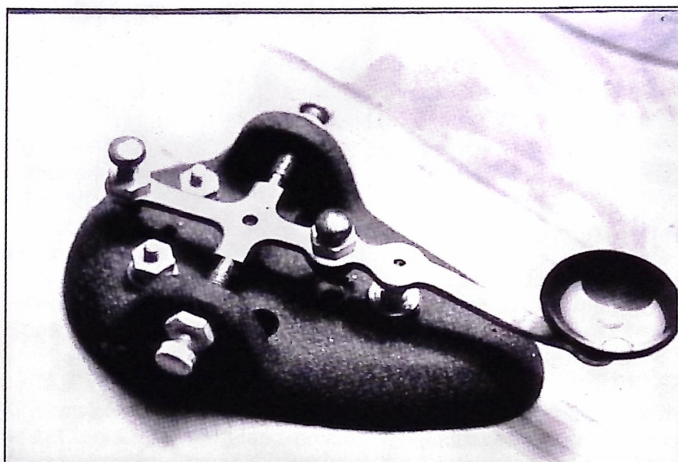


Photo 1-11 The beautiful and ever-popular McElroy Teardrop hand key. Item has streamlined design and handles great.

in production of semi-automatic keys during eras past. At this time, however, I must also point out Mac produced a small line of teardrop-based hand keys that are still popular and highly sought by CW devotees today. What is special about Mac's Teardrops? Everything! Notice in Photo 1-11, for example, the key's classic lines, perfectly finished wrinkle base, and

true "big league" radio appearance. Talk about a viable piece of history you can hold in your hand!

Mac's Teardrops were simple in design yet true heartthrobs. So much in fact, counterfeit and inferior copies made their way to market for several years and continue surfacing in unexpected places today. Ah--but direct comparison of phony

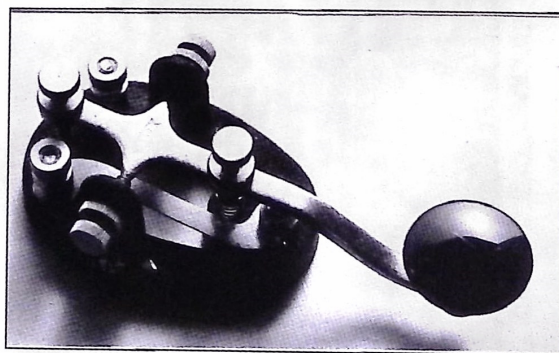


Photo 1-12 Classic lines and traditional designs are also obvious in this famous Speed-X hand key made during the 1950s. Like the Mac Key, it also has a molded base.

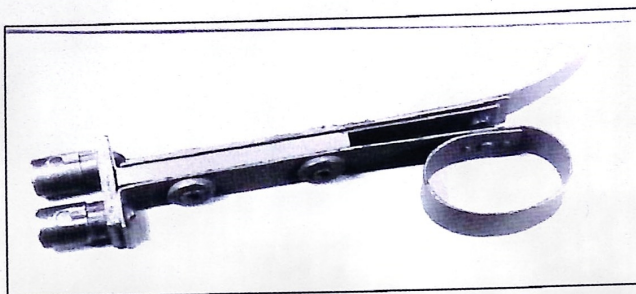


Photo 1-13 The unusual J-51 Scissors Key. Item fits in palm of your hand and operates by squeezing forefinger and thumb together. Notice only form of insulation is paint on straps. Key owned and photographed by Bill Holly, K1BH.

versus authentic Teardrops reveals noticeable differences such as pot metal bases, poor wrinkle painting, and misaligned contacts. A phony Teardrop has mounting holes for screw-securing it to a desk (and thus concealing a warped base), but the scratchy sound of improperly mating contacts in a poor copy is unmistakable on the air. Quite simply,

nothing beats the real thing! May you be fortunate enough to find a genuine McElroy Teardrop to glamorize your own key collection, and to occasionally use on the air!

Speed-X Hand Key

Another well-known manufacturer

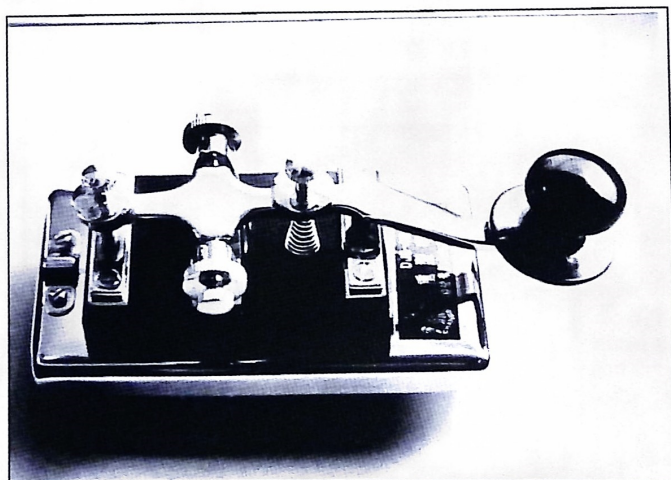


Photo 1-14 The Chinese Pump key was rescued from a sinking cargo ship and removed from its hermetically sealed packing for photographing. Key looks terrific, but tension spring is a mite stiff for daily use.

of bugs and hand keys during past times (and a name that continues strong in the U.S. hand key market today) is Speed-X. The company was started by Les Logan in San Francisco during the early 1940s, shifted to E. F. Johnson during the late 1940s, then changed to its present owner, Nye Viking, during the 1960s. Speed-X hand keys reflect a rich heritage and classic design that refuses to fade in the annals of time--and justifiably so; they handle exceptionally well!

The Speed-X shown in Photo 1-12 consists of brass and metal parts mounted on a 4.6 x 2.5 inch base. It has seen several years of intensive operation, but it is still fun to use today!

J-51 "Scissors" Key

The item shown in Photo 1-13 may look like a novelty, but let's not pass judgement prematurely. This is a one-hand "finger key" made by the U. S. Army during the World War II era. The key was apparently designed for use by field troops when walking or sitting, and was probably mated with a low power CW transmitter or some type of flashing light setup for limited-range communications. Either way, we must admit it is a most unusual Morse device!

A certain amount of dexterity and a good sense of humor are obviously necessary to use this little key. You hold the key so its binding posts extend down toward your little finger, slip your thumb through the loop, and rest your index finger on the curved piece. You then transmit Morse by squeezing your thumb and index finger together. The key carries a military designation of J-51 and is painted army green, which serves a second purpose of reducing shock hazard. Obviously the key was used with a low voltage line or a relay because accidentally scraped paint could prove a shocking experience. Look at that simple

spring-steel mechanism with center wood insulator, the curved ends acting as molded fingerpieces, and those press-fitted contacts. The Signal Corp. truly designed a military version of my own Wild Woody WARC key when they produced this little gem.

Chinese Key

The attractive chrome hand key shown in Photo 1-14 was made in China and acquired new in its original-sealed plastic shipping package by Gordon Crowhurst, G4ZPY. A cargo ship carrying goods from China had an accident off the coast of Africa and two of these gems were among items rescued before the ship sank.

Notice the heavy chrome plating on both base and mechanism, and the good workmanship in machining. Also notice the nametag with Chinese inscription on the base. Impressive! The big surprise occurred when this key's package was opened: the gap was preset quite wide and tension, which was factory-preset at minimum, was actually too stiff for comfortable QSOs. Our Chinese friends must be true "pumpers!" The key is solidly built and well-weighted. It is obviously intended to last a lifetime.

Summary

Most of the keys shown in this chapter are special collectors' treats rather than "everyday items" found in average stations. As such, each is difficult to find and almost impossible to purchase from a dedicated collector. Ah, but nearly everything including rare keys have a price...if the buyer is willing to accept it.

CHAPTER 2

Ever Popular Bugs

Okay friends and classic radio fans, this chapter addresses your insatiable quest for knowledge of big-time telegraph instruments head on! It highlights the top names in semi-automatic keys during past times, namely Vibroplex, McElroy, Speed-X and Dow, and contains background details on various models of each. Understand this is not an all-inclusive historical account of specific companies like Bill Holly's "Vibroplex Book," but rather a newcomers/appreciators guide to recognizing our most popular bugs and studying their differences. In other words, forget the hard-nosed critiquing and enjoy the views!

As most radio amateurs know or have heard, mechanical bugs "ruled the roost" in code transmission between the early 1900s and the mid 1960s. Their decline in popularity is basically attributed to two factors: introduction of electronic

keyers and older bug users losing "fist agility." New amateurs seem to overlook bugs, and maybe that is a good idea. Using a bug requires developing good wrist action, a smooth fist, and practicing--practicing--practicing. Conversely, one can send almost-perfect code with a good paddle and electronic keyer by merely "bumping" appropriate dot/dash finger-pieces. What, then, is the special glamour in using a bug? Skillfully handled, it can send beautiful-to-hear and quite-easy to copy code. Weighting can be changed with mood of the moment-even varied between dots and dashes, and the user also enjoys mild tactile feedback from pendulum vibrations. In other words, using a good and well-tuned bug is a blast! Not every bug fits that description, however: some have stiff (fast!) mainsprings, old arm tensioning springs (a flat feel) and some have weights set for ultra-fast dots (usually an operator's

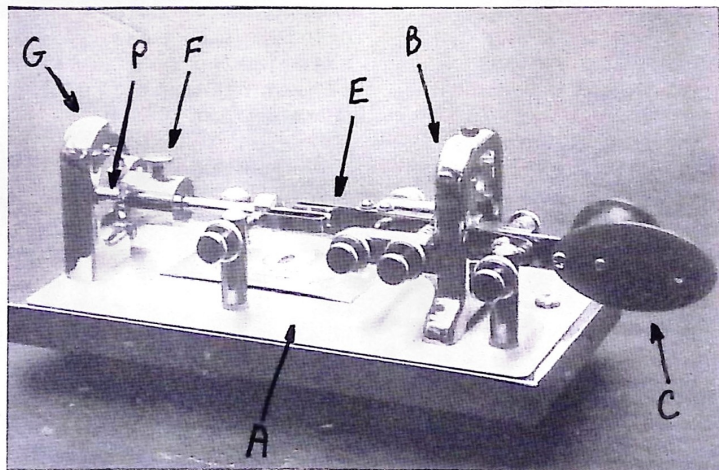


Photo 2-1 The main working parts of a bug. This generic outline will be used in describing bugs throughout this book. Key used in this photo is Vibroplex's new/1995 black-based and triple chromed mechanism "Original" model bug. Photo by Les Cox, AA4F.

oversight). If you can send Morse code with a bug and the receiving station can copy it on a computerized setup like you are using a keyer, congratulate yourself and have fun with bugs. Otherwise, I suggest sticking to an electronic keyer and paddle for on-the-air operations and using bugs mainly for home demos. Pardon my frankness; it is only meant to help you. Now let's proceed to awaiting views and discussions of the world's most famous semi-automatic keys!

As a logical starting point and common ground to understanding bugs, let's begin with a discussion of their working parts. Your attention is thus directed to Photo 2-1. Generically described, the main parts of any bug are its base (A), yoke that supports the movable arm (B), and the movable arm that has fingerpieces on one end (C), and a long pendulum on the other end (D). A flexible steel mainspring is fitted between the arm's two sections (E); this is the piece that actually causes the pendulum to vibrate and produce automatic dots. Additional parts include weights for setting dot speed (F), rear damper (G), and

the dot contact assembly (H). These parts-identifying names will be used in both this chapter and following chapters as a common point of reference.

Vibroplex: The Living Legend

Since Vibroplex is well-known as "the oldest name in amateur radio" and you are probably familiar with one or more models of Vibroplex bugs, let's begin with a show-and-tell discussion of this company's history and its products. We start in 1902 with Horace G. Martin's invention of the first semi-automatic key, the Autoplex. Martin was a mechanical wizard, a commercial telegrapher, an entrepreneur, and (later) a self-made millionaire. As a young man working in telegraph offices, he quickly realized the limitations in using manual hand keys on a continuous basis. He thus built a device with a horizontally pivoting arm and a set of electromagnets that activated a relay lever to make dots automatically. Martin's first Autoplex looked quite similar to a super-modified telegraph

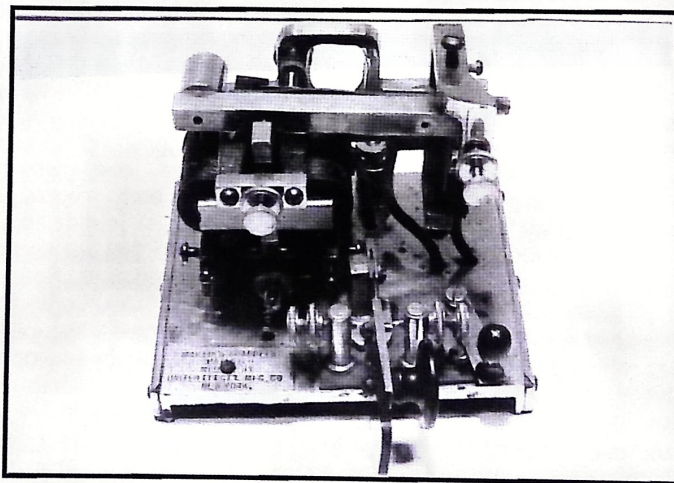


Photo 2-2 Horace G. Martin's first design of a semi-automatic key was the Autoplex, shown here. Item was made between 1902 and 1904, and used batteries to power its electromagnetic and make dots automatically. Autoplex photo courtesy owner Gil Schlehman, K9WDY.

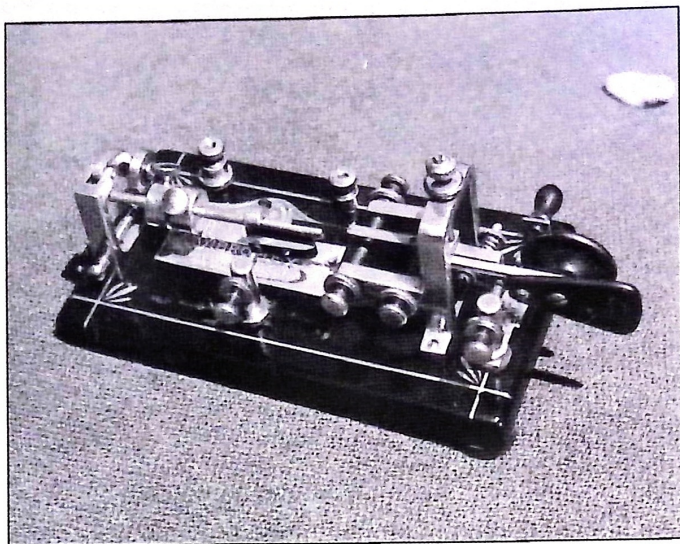


Photo 2-3 Special pinstriped version of ever-popular Vibroplex "Original" model bug (circa 1925). Note single piece yoke, round pendulum and weights, and rear damper that swings out/open when bug is turned over. Key owned and photographed by Robert Butt, N1KPR.

line pony relay. Upon seeing and test-using the unusual key, fellow telegraphers advanced Martin money to make them similar items. Martin was quickly overwhelmed with orders, so he and several business associates formed the United Electrical Manufacturing Co. and began producing more professional models of the Autoplex (see Photo 2-2). This item proved semi-automatic key merit but it was large, difficult to adjust and required batteries for operation, so Martin began working on an all-mechanical replacement.

Martin's new brainchild was his first or "Original" model bug, which he named the Vibroplex and patented in 1904. First ads on that Vibroplex (which was made by the United Electrical Manufacturing Co.) appeared in telegraph magazines during 1905. This Original model gained immediate popularity. So much in fact, it has continued in production with only minor variations since 1905. It has undergone

changes from nickel-plated parts to chrome parts, painted to beautifully pinstriped bases, jewel movements, and even a gold plate option (Presentation model). A photo of a classic "Original" model is shown in Photo 2-3.

The Original model is identified by its 3.5 inch wide base, one piece yoke (squared design on early models; more rounded on late models), round pendulum, and rear damper arm that will swing out when the bug is turned over. Notice this gem, like other Vibroplex bugs, is not marked with its model/type (although some later Vibroplexes were rubber-stamped on their base bottom with a model/name). The key's nameplate carries a serial number, but Vibroplex records were destroyed in a fire a few decades ago. This means determining which model Vibroplex you have and its approximate age involves studying the bug's design (yoke, pendulum, damper, and base width), base finish, and

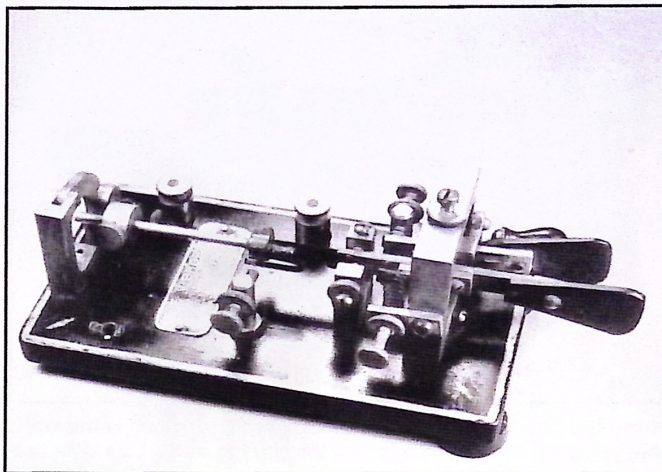


Photo 2-4 Unusual Double Lever Vibroplex. Dash lever works completely independent of dot lever, and mates with (dash) contact on key's right (rather than left side (like usual)). Rare versions of this bug have a cloverleaf-cut pattern inside yoke. Photo courtesy owner Bill Holly, K1BH.

nameplate style. Additional model and dating tips are included at the end of this Vibroplex section.

Vibroplex's "Original" is the only model in continuous production since the company was formed, thus it is their most popular and most commonly-found bug. "Usual" varieties have gray or chrome bases; older varieties have black bases, and special varieties have japanned bases with gold pinstriping.

Even before excitement over Martin's all-mechanical Model 1 Vibroplex peaked, he announced a second model: The Double Lever shown in Photo 2-4. This bug is unusual in the respect it has separate and independently operating levers for making dots and dashes. Move the left fingerpiece toward the right, and dots are made automatically like a regular bug. Move the right fingerpiece toward the left, and dashes are made manually (note dash contact on key's right side). Squeeze both levers simultaneously, and the pendulum vibrates, but only a solid and

long dash results. Why? Using a Double Lever Vibroplex obviously requires masterful wrist action. Ah, but such use is only a dream for most of us because Double Levers were made only between 1908 and 1914, and are quite scarce today (sigh!).

Since this story relates to both Vibroplex keys and the Vibroplex Company, and because we are striving to follow a chronological order (a real challenge!), let's now add some "company information." Between 1905 and 1911, Martin's Vibroplexes were made by The United Electrical Manufacturing Co. and sold (by Martin) through telegrapher friends and magazine ads. In 1911, Martin struck a deal with J.E. Albright (who was running a typewriter sales and service business at the time) to market and sell his Vibroplexes. The deal proved a success and, in 1912, J. E. Albright became the sole marketing agent for Vibroplexes. Albright fought off several challengers to Martin's bugs, bought out worthy competitors, and sold

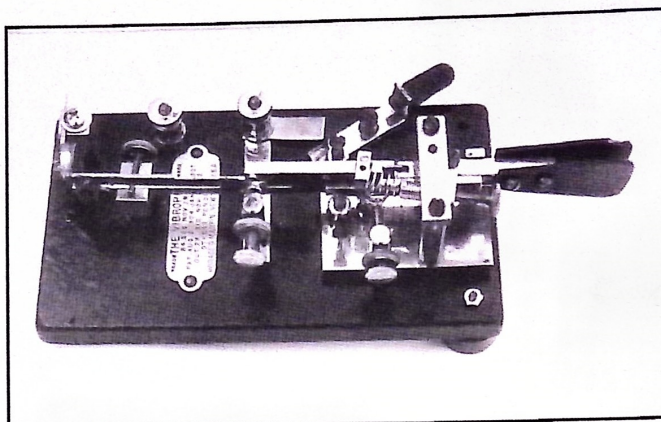


Photo 2-5 This is a Model "X" Vibroplex and it is unique in the fact it uses a single set of contacts (on dot side) to make both dots and dashes. Fascinating explanation in text. Key owned and photographed by author Dave Ingram, K4TWJ

Vibroplexes like crazy. In 1915, J. E. Albright's company made the big change. They moved into manufacturing bugs Martin had designed and would design in upcoming years, dropped typewriters, and became "The Vibroplex Company." Martin stayed with J. E. Albright and Vibroplex until 1920, then left on good terms. J. E. Albright continued at the helm of Vibroplex until 1947, when presidency passed to brother W. W. Albright. In 1965, the Albrights sold the Vibroplex Company to John A. LaHiff (an employee who possibly designed the Lightning Bug and Champion). Son Vincent LaHiff inherited Vibroplex after John died. In 1978, Vincent sold the company to Peter Garsoe, who moved it to 98 Elm Street, Portland, Maine. Two new items, the Brass Racer paddle and keyer were added and two old favorite items, the Lightning Bug and Champion were dropped. In 1994, Peter Garsoe sold Vibroplex to Felton (Mitch) Mitchell, WA4OSR, in Mobile, Alabama. (This information is being written only a couple of weeks after that sale.) I interviewed new owner Mitch while writing this chapter, and he seems like the perfect person to

spearhead Vibroplex and move them into the 21st Century. He is already talking about new models, improved quality and more. What a live wire! Whew! I also discovered Mitch (WA4OSR) and I had QSOed some time ago, and I had sent him a Wild Woody WARC key, which is now in the Vibroplex office. Wow! Now back to our story.

In 1912, Martin announced his third Vibroplex: The Model "X" shown in Photo 2-5. This bug is unusual in both its mechanical design and its use of a single set of contacts to make both dots and dashes. The main arm is made of two sections that pivot right beneath the yoke, then there are two arm sections past that pivot point. The lower arm section connects to the vibrating mainspring, which is attached to the long pendulum. A square weight on the pendulum sets dot speed, and a long (and flexible) contactor spring attached to the pendulum's far end taps against the post when the pendulum vibrates. When the key's fingerpiece is moved toward the left to make dashes, arm reversing action holds the bottom arm and pendulum steady against their limit screw

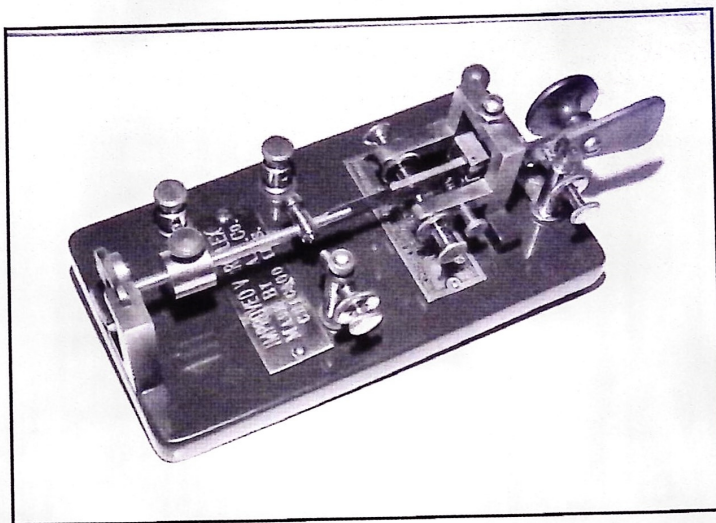


Photo 2-6 The "Improved" Vibroplex made by the A to Z Novelty Company of Chicago, Illinois. A very limited number of these illegally-produced items were made and resulted in almost as many problems for their owners as the A to Z Novelty Company experienced in lawsuits. Photo courtesy of K9WDY.

and damper while allowing the top arm (one above mainspring) to press the contactor spring solidly against the dot post to make dashes. Just watching the upper and lower arms moving the contactor spring against the dot post while using a Model X is a treat. This bug was dropped from production in 1918, consequently most of those still surviving today are in private collections.

Three models of Martin's semi-automatic keys were now in production, J. E. Albright's typewriter operation was on the brink of becoming The Vibroplex Company, and one of several challenges surfaced. The A to Z Novelty Company of Chicago, Illinois announced a look-alike bug labeled the "Improved Vibroplex" and shown in Photo 2-6. Although remarkably similar to Martin's Vibroplex Original model bug, A to Z and Vibroplex were not affiliated in any respect. Apparently A to Z was not familiar with the telegraph market and did not know (or care) they were infringing on sacred ground. Possibly they thought any

semi-automatic key was a Vibroplex, or possibly they visualized catching a piece of the action before being discovered. It did not work. Vibroplex immediately filed a lawsuit, shut them down flat, and even warned A to Z users they would be liable to corrective action when using the key in commercial facilities. Close investigation of A to Z's bug indicates the only "improvement" is a slightly modified dot contactor spring. A fixed bar attached to the pendulum is used in lieu of the usual horseshoe-type spring mounted contact. Apply the classic proverb "all that glitters is not gold" to this look-alike bug, and we can accurately state even the most Vibroplex-looking semi-automatic keys may not always be the real thing! Our thanks to the king of key collectors, Gil Schlehman, K9WDY, for sharing views of this rare item.

A good working arrangement was then in place: Albright headed up Vibroplex promotion and marketing while Martin designed new models. His next key was the famous Model 4, which later became the

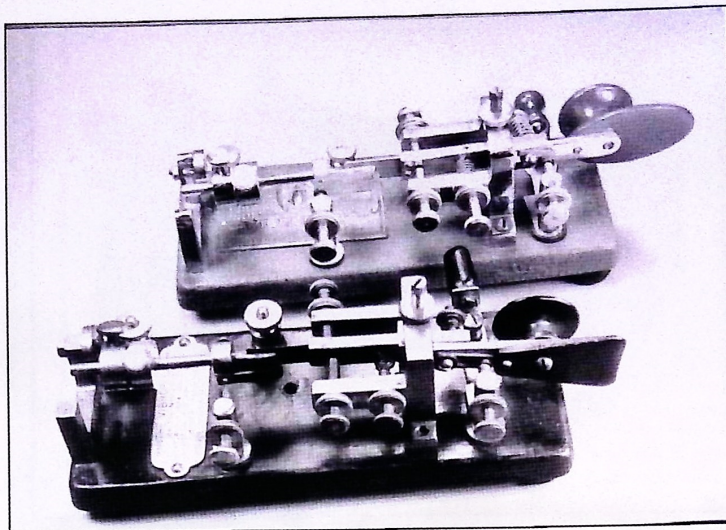


Photo 2-7 This pair of trim and petite little bugs started out as Model 4s. Then, around 1922 Vibroplex changed their name to "Blue Racer". How can you determine which is a Model 4 and which is a Blue Racer? Check the shape of their fingerpieces and nameplate, as discussed in text.

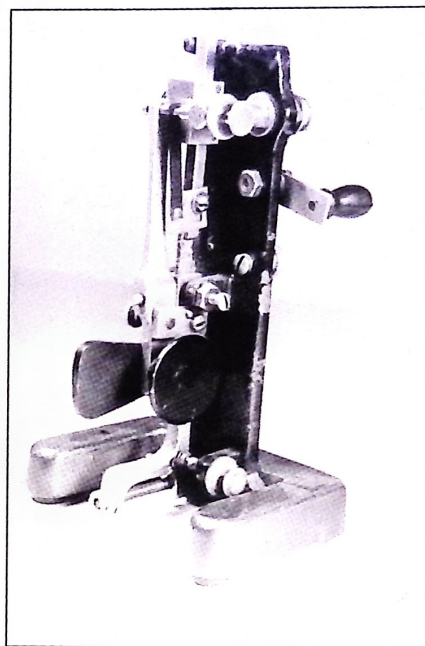
Blue Racer (see Photo 2-7). It was manufactured from 1914 until the early 1960s, and it is a popular item among both bug users and collectors today. Model 4s made between approximately 1915 and 1920 carried old-style Martin nameplates. Those made after 1920 carried Vibroplexes now familiar bug-logo nameplate. During that transition period, stick-on bug logos appeared on various Model 4s. Collectors finding these rare gems should be very careful during clean-up/refurbishing, as the decals rub off quite easily. Around the time of Model 4-to-Blue Racer name change (approximately 1922), a very limited number were made with dark cobalt blue bases. These versions are prized collectables today.

Model 4s and early model Blue Racers are easily recognized by their "smaller than a regular bug" size yoke, narrow 2.5-inch wide base, and "U"-shaped damper bar. This key really fits in your hand! Deluxe Blue Racers made after the 1950s have a small copy of the swinging

damper arm like used on Originals rather than the "U"-shaped damper bar. Most Blue Racers have a minimum dot speed of 15 wpm, but they are terrific fun to use especially in contests. Next in the spotlight are two very limited production delights made between 1917 and 1924: The Upright or Vertical bug and the Midget. These two models are so similar in their mechanics, Martin considered the combo his "Model 5." Both of these keys are rare as 1953 model Corvette autos, and comparably cherished by their proud owners.

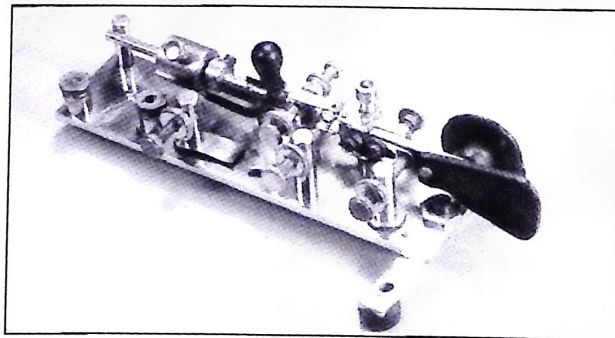
Martin's vertical Vibroplex is shown in Photo 2-8. Notice its main arm is supported by a single pivot post rather than a traditional yoke, and a single set of contacts similar to those on the Model X are incorporated. The key's circuit closing lever and Vibroplex nameplate are mounted on the rear. The key is affixed on a heavy horseshoe-shaped base, and has mounting holes for screwing to a desk. This gem was also known as the "Wirechief's Key," as its vertical design and small "footprint"

Photo 2-8 The classic Vertical Vibroplex, or "Upright" bug. This rare gem was also nicknamed the "Wirechief's Key" because it occupied minimum space on a busy operator's desk. Notice a single pivot post is used in lieu of a conventional yoke. Truly a bug lover's dream! Photo courtesy Bill Holly, K1BH.



occupied minimum space on a busy telegrapher's desk. Now this is a bug that can really make modern-day CW operating fun—if one is lucky enough to find one and convince its owner to sell or trade it for a ransom fee or new rig (doubtful but possible).

Look close at the Martin Midget in Photo 2-9, and notice how much of its mechanism is similar to that on the vertical bug. Notice the arm's pivot post mount,



damper, and incredibly small size. This rarest-of-all Vibroplexes is a genuine pocket bug, and an absolute heartthrob. Only four of these beauties are known left in existence today, and owners cherish them more than life itself. Our sincere compliments to Bill Holly, K1BH, for sharing this photo of the Midget and previously discussed Vertical Vibroplex.

Our next Vibroplex is the Model 6 which was first made in 1927, later

Photo 2-9 The rarest and most captivating Vibroplex of all: the Midget. Key's working mechanism is similar to and same size as, that used in Vertical Vibroplex. Stabilizing arm swivels out for operation or back for carrying in a pocket. This gem is tiny! Only two of them are known left in existence. Photo courtesy K1BH.

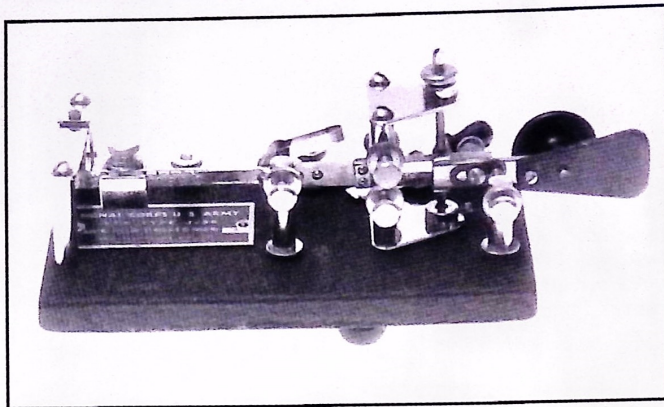


Photo 2-10 Vibroplex Model 6, which underwent a name change to the Lightning Bug. Note tripold-post yoke with flat top, flat blade pendulum and flat bar damper assembly at rear. This ever-popular bug is becoming more difficult to find every day. Photo by Les Cox, AA4F.

renamed the Lightning Bug, and dropped from production in 1978. This popular key is shown in Photo 2-10. Notice its triangular-shaped and flat-top yoke with round support posts, flat (rather than round) pendulum and hanging rear damper wheel supported by a post-and-bar assembly. This combination, plus a 3.5 inch-wide base signifies a Lightning Bug. Around 1930, this bug was also produced (in limited quantity) with a red, green, or blue base. Numerous Lightning Bugs were also made for the military during World War II; they were designated "J-36," and "look-alikes" were even made by Lionel (the toy train company) to fill massive needs. Many radio operators carried their J-36/Lightning Bugs' home after the war and extras often surfaced in military surplus stores. Today, these gems are becoming increasingly difficult to find.

Two variations of the popular Lightning Bug are the Champion (Photo 2-11) and the Zephyr. The Champion was made from 1939 until 1978, and differs from a Lightning Bug in the respect its rear damper wheel is supported by a single mount beside the pendulum. Other mechanical aspects appear the same; even

the base is 3.5 inches wide. There is one other unobvious difference: every Champion I have seen/used has a very flexible mainspring and a great "feel" when used at slower speeds. Since this model was low priced, Vibroplex evidently built it for new bug users-and I agree. It is the perfect bug for newcomers. The Zephyr was made from 1948 until 1958, and looks identical to a Champion except it has a 3 inch-wide base. That trim base results in a super-neat bug that fits almost anywhere. Unfortunately, Zephyrs are scarce compared to Champions. Only one other model Vibroplex was made on a 3 inch-wide base: the Martin Junior (1935 to 1939). This bug looks like an Original model on a narrower base.

Our tour of various model Vibroplexes now approaches the present time, and the only model bug in production (as of 1994!) is the Original. It is available in painted (Standard), chrome (deluxe) or gold-plate-atop chrome base (Presentation) versions. Other items (keyer paddles, etc.) available from Vibroplex today are featured in Chapter 6.

Some additional bugs often mistaken as Vibroplexes warrant

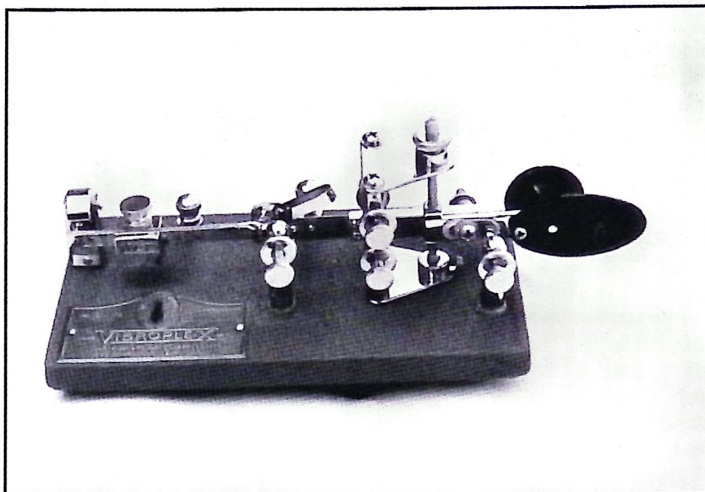


Photo 2-11 The Vibroplex "Champion" key looks similar to Lightning Bug, except rear damper wheel is supported by a single upright piece (compare with Photo 2-10). Unobvious difference: most Champions have a very "friendly" mainspring, allowing them to send well-weighted dots at slow speeds. It is a great "first bug" for CW lovers! Pix by AA4F.

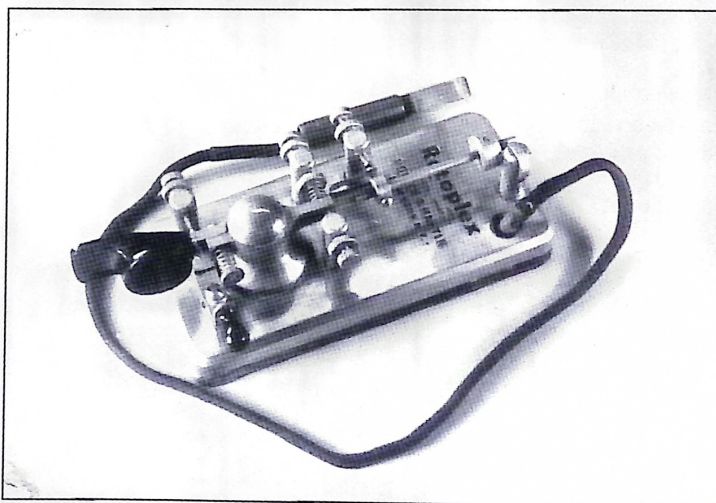


Photo 2- 12 H. G. Martin produced this unusual Rotoplex after leaving Vibroplex. Note large dome-type arm mount (it moves with arm, hence key's name). Photo courtesy David Pennes, WA3LKN.

recognition at this point. These items were designed by H. G. Martin after leaving

Vibroplex. First is the Rotoplex shown in Photo 2-12. This 1941-produced delight

has a large pivot post with shiny top dome supporting its main arm (look Ma: no yoke!). It also has a single damper wheel support post, and one screw for both arm travel limiting and tensioning. The latter feat is accomplished by mounting the tension spring over the travel screw: an idea Speed-X later used extensively. Rotoplexes are scarce today, highly sought, and great fun to use.

Finally, we have Martin's famous Flash Keys like shown in Photo 2-13. As you can see, Flash keys are identical to regular Vibroplex bugs! There is no official explanation regarding the designation of "Flash Key." Indeed, the name may have simply evolved from Martin's brainstorming while making the keys. Only a limited number of Flash keys were made. They were manufactured between 1939 and 1940 in "duplicate versions" of the Blue Racer, Lightning Bug and Original. Some models carry Martin nameplates, others are nameplate-marked Bunnell-Martin. Possibly the short life of these collectors prizes was

due to the friction they generated between J. H. Bunnell and Vibroplex.

What Model and Age Is My Vibroplex?

Friends and fans often ask me for a quick-reference guide to various models and ages of Vibroplex bugs, so here are the streamlined facts. First, hold the bug upside-down. If its rear damper arm swings out, it is an Original, if the base is 3.5 inches-wide; a Junior if the base is 3 inches-wide or a late model Blue Racer if the base is 2.5 inches-wide. If the rear damper is "U"-shaped rather than a "swinger," the bug is a Model 4 or Blue Racer. If the rear damper hangs from a flat top bar and the pendulum is flat rather than round, it is a Lightning Bug. If the pendulum is flat and the damper is on a single post, it is a Champion (if 3.5 inch base) or a Zephyr (if 3 inch base). We have now covered the "usual" models. Beyond this point are "rarities" like the Model X (square

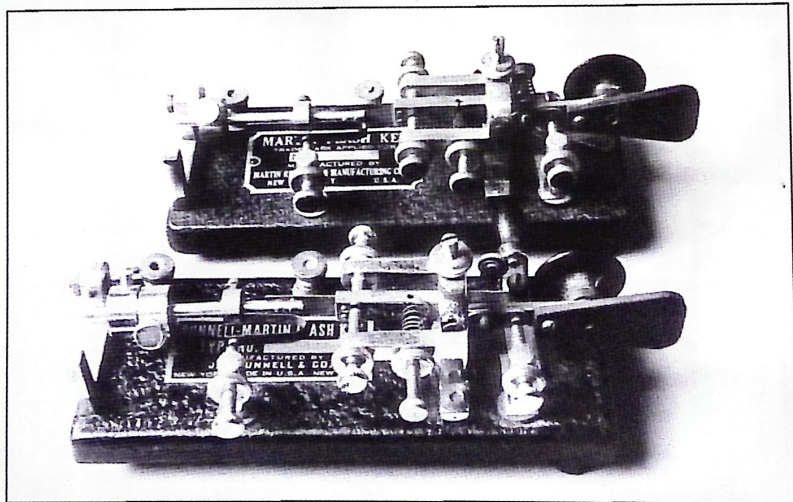


Photo 2- 13 Rare, fascinating and most attractive best describe these Martin-Bunnell Flash keys. Items were made for only a short time, as they generated noticeable tension between Martin, Bunnell, and Vibroplex. Notice they look identical to Vibroplexes with different nameplates.

pendulum and one set of contacts), Dual Lever (self explanatory), Rotoplex (big post holds arm) and the Vertical or Midget (don't even think about those if you find one--just telephone me!).

Early model Originals (and other Vibroplexes) have black painted bases and rectangular nameplates of "THE VIBROPLEX by Horace G. Martin." The nameplate was changed to exclude Martin's name in 1917, then changed to its present "medallion" style (with red bug on logo) in 1920. Between 1917 and 1920, several Vibroplex bugs were sold with stick-on bug logos. Between 1917 and 1930, several models had glossy black (Japanned) and gold pinstriped bases rather than the traditional black wrinkle finish. Around 1940, fingerpieces changed from "squared-off" to "rounded" designs. Vibroplexes with Martin's name were made between 1904 and 1915. Those without Martin's name and with Vibroplex Company's address of 253 Broadway, New York, were made between 1915 and 1920. Nameplates with Vibroplex's address of 825 Broadway were made between 1920 and 1936. Nameplates with Vibroplex address of 796 Fulton Street, Brooklyn, NY were made between 1936 and 1942. Nameplate with Vibroplex address of 833 Broadway, NY were made between 1942 and 1979. Vibroplexes made after 1979 do not have an address stamped on their nameplate. Good luck on finding the Vibroplex of your dreams!

McElroy: The Man and His Keys

Another famous name in the history of keys is Ted R. McElroy: the all-time world's champion radio telegrapher. Indeed, McElroy's 1935 record of copying Morse code at 77 words per minute still stands undefeated today. Mac differed from H. G. Martin in the respect his main interest was telegraphy itself rather than designing and making semi-automatic keys. Encouragements from friends and co-

workers became overwhelming, however, so Mac spearheaded an impressive key-producing operation that lasted from approximately 1934 until 1955. Main products of the line were Mac's ever-popular tee-bar bugs (painted or simulated marble base) and teardrop hand keys like featured in Chapter 1.

McElroy was a fascinating and highly motivated individual. He learned to type 150 words per minute and copy fast code before graduating from elementary school. He began working as a Western Union telegrapher while a very young teenager, became a "Wirechief" by age 15, and gained the admiration of other telegrapher's nationwide. After starting up his own key production business, Mac traveled around the country giving lessons in learning Morse and copying high speed code. He was an admirable showman, and his talks were always well-received. Ted McElroy passed away in 1963, but he left behind a variety of Morse code-assisting charts and items plus numerous Mac keys that are cherished by CW aficionados and collectors today.

One of the most popular styles of Mac Key bugs is shown in Photo 2-14. This 1937-produced gem sports Mac's famous "Tee" bar yoke which serves two purposes: a carry aid and a straight key adapter. First, you can curl two fingers around the Tee bar for "lift and go" flexibility. Second, the bug can be laid on its side (with the Tee bar stabilizing it and the pendulum locked to the damper post with a rubber band), and used as a hand key. The bug has a 4 inch-wide base, low-slung feet, and holds firmly in place on a table during use. The nameplate (which adds even more clout and value!) is inscribed "MAC KEY Mfd. by Theodore R. McElroy WORLD'S CHAMPION RADIO TELEGRAPHER". Truly a classic bug!

Another variety of Mac Key is the unique teardrop-based Stream Speed 600PC shown in Photo 2-15. This work of art was made in 1938, originally sold for twelve dollars, and is valued over twenty

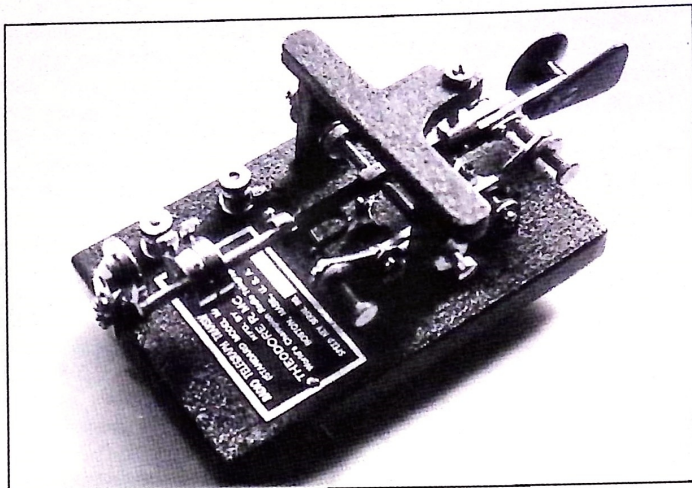


Photo 2-14 Classic 1937 Mac Key bug with famous Tee bar yoke and impressive black wrinkle finish. Item handles great and adds terrific fun to usual on-air operations.

times that amount today. The Stream Speed is beautifully chrome-plated, solidly built, and has platinum-coated contacts that work as good today as they did 57 years

ago. Now this is a bug one could really enjoy using with a modern rig! Whew!

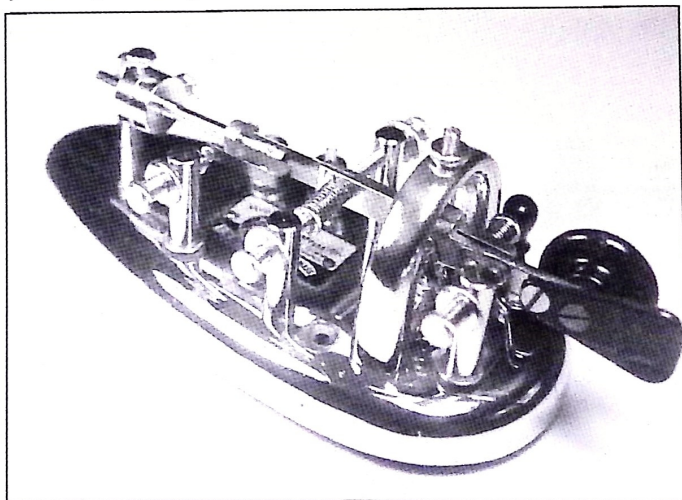


Photo 2-15 This operator's end view lets one realize the Stream Speed is no ordinary semi-automatic key. The little showpiece is brilliantly chromeplated and has a neat teardrop base. Visualize using this delight with your rig today. Ham heaven for sure!

Logan, Johnson, Nye Viking, and Speed-X

Next in the spotlight is Speed-X, an intriguing line of keys started by Les Logan in San Francisco during the early 1940s. The line was apparently sold to E. F. Johnson Company during the late 1940s, then sold to its present owner, Nye-Viking, during the late 1960s. Nye-Viking dropped Speed-X bug production, however, so only their hand keys continue today. Pity, as Speed-X bugs were both economical and (due to quite flexible mainsprings) easy to use. In fact, one can almost sense Logan's sensitivity for new amateurs by the slow speed capabilities of most Speed-X bugs. I have strived to learn more facts about Les Logan during the last few years, but uncovered precious little information. In many ways, an aire of mystique thus surrounds his keys.

The Les Logan Speed-X Model 510 shown in Photo 2-16 is truly a heartthrob.

Possibly it was made as competition to Vibroplex's Blue Racer, as the 510 is even smaller! The base, which is painted in an unusual black velveteen-type finish, measures only 5.5 inches long by 2.0 inches wide: tiny, palm-size, and terrific! The only hitch is the lightweight base requires holding or screwing the key down to a desk during use (holes in base were standard). I know of only one other bug smaller than this model 510: Martin's (priceless) Midget. Fortunately 510's are not so rare!

Another variation of Speed-X is the smooth handling and enjoyable to use bug shown in Photo 2-17. This key has a flat-topped yoke and a double-labeled nameplate carrying both the Speed-X name and E. F. Johnson with a catalog number of 114-500. This bug has a single large weight stamped Speed-X, and can be quick-moved along its pendulum to change speed at a touch. Like other Speed-X bugs, the dot tensioning spring is fitted inside the yoke (over the dot-stop adjusting screw).

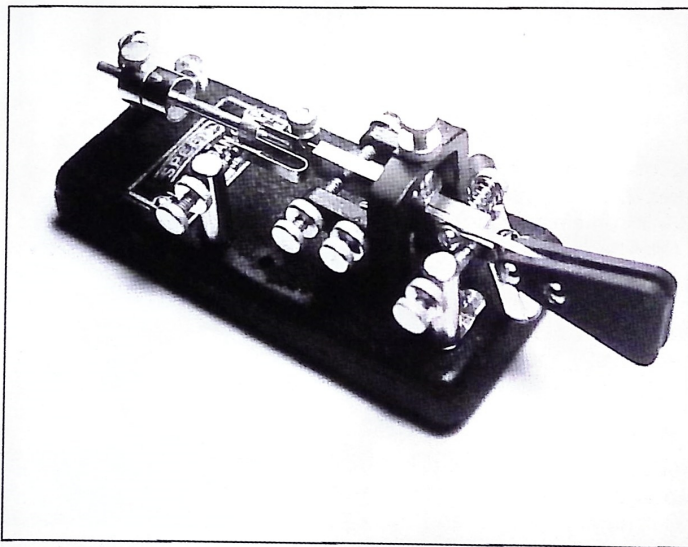


Photo 2-16 The ultra-compact Speed-X model 510 bug is a real attention grabber. It measures only 5.5 inches long by 2.0 inches wide, has simulated velveteen finish and sports Les Logan nameplate.

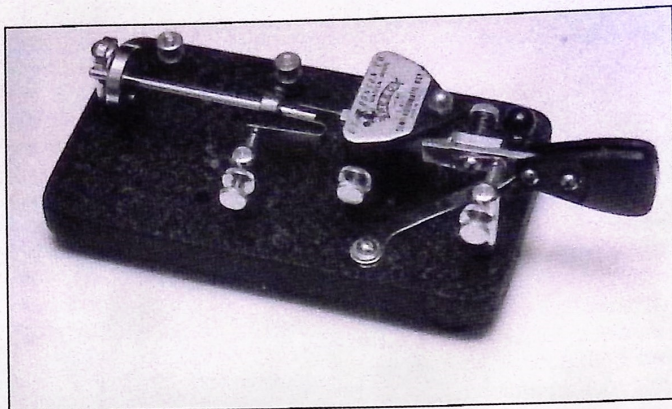


Photo 2-17 Double-labeled bug carrying both Speed-X and E. F. Johnson on nameplate. This full-sized key has very good action and is quite enjoyable to use.

This bug has a very wide speed range, and it is super-fun to use on the air. Johnson also produced another bug almost identical to the Hi-Mound BK-100 shown in a following chapter. That plastic-cased item is more common today than the 114-500.

Dow Keys

Concluding our views and tales of popular name bugs is DOW KEY: an operation that began in Winnipeg during the 1950s and mainly sold keys to the Canadian market. DOW apparently gave up and sold their remaining stock to a specialty shop (who had no idea what keys were!) during the 1960s. I say that because, during the mid 1970s, a number of new-in-the-box DOWs surfaced in a Minnesota-based novelty shop. Now don't get excited: the keys were "cleaned out" of that no-name shop several years ago!

DOW KEYS were made in three styles: a Vibroplex "Original" look-alike model, a rotatable yoke model that can be tilted for right or left hand operation, and an unusual fixed-tilt model like shown in Photo 2-18. Obviously, DOW was infatuated with unusual angle designs. How does the fixed tilt handle in operation? Similar to a

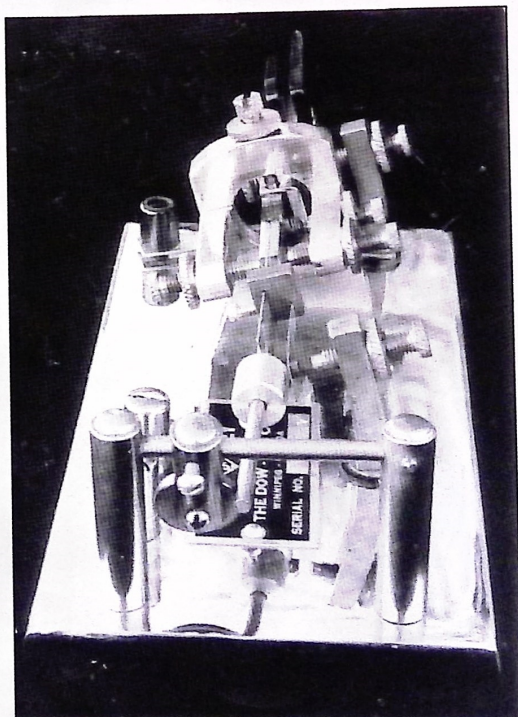


Photo 2-18 Deluxe all-chrome Tilted Yoke Dow key bug. This beauty adds real sparkle to any HF setup.

Vibroplex, but tilted the wrong way for most fists. Instead of being easier to use, it seems more difficult to master. Ah, but the DOW is a dazzling item that adds sparkle to any key collection or ham shack--provided you are fortunate enough to find one!

Conclusion

The bugs highlighted in this chapter represent amateur radio's most popular makes and models of semi-automatic keys during past times. As such, they are relatively plentiful compared to less known and exotic items featured in upcoming chapters. I use the term "relatively plentiful" in a cautious manner, however, assuming you understand nearly all bugs except Vibroplex's "Original" (which has been in continuous production almost 100 years) are getting more scarce by the day. I also assume you understand limited-production bugs of any name are usually more valuable than high production items, and you realize specific-dollar valuing a key is like shooting at a moving target. Finally, most of this chapter was devoted to Vibroplex because they are the world's most popular bugs and many collectors specialize in only Vibroplexes.

CHAPTER 3

Unusual Bugs

Although Vibroplex, McElroy, Speed-X and Dow were leading producers of semi-automatic keys for both telegraph and radio use, they were not the only players in the game. Indeed several smaller companies in the United States and overseas made bugs of all types. Some were well-engineered and quite clever, some used swung pendulums like clocks and metronomes, and some were combined bug-and-sideswiper items. The number of these gems produced was small compared to major-name keys, consequently, most of those remaining in existence are genuine collectors' prizes. Placing exact values on each is difficult, as collectors trade rather than sell prized keys. Yet like some people say "everything has a price. Even a rare collectable can be purchased from an owner (known or unknown) somewhere if the offer is high enough." I must agree. Only a year ago I met a fellow towing a 1957 Chevy convertible he purchased in

Florida the previous day...for eighteen thousand dollars! The difference? The serious key collectors I know are level headed and fair minded; they do not scalp or sell keys at extremely high profit. Neither do they pay insane prices for keys. Ah, therein is another point: keys increase in value just like vintage autos, but they are significantly less expensive on an individual basis. And, just like autos, a "collection" may be any number items from one or two to a dozen or more! Now let's look at some unique and unusual semi-automatic keys from yesteryear. Hang on--we are going to move fast!

The Codetrol

Since this bug was featured in my previous "Keys, Keys, Keys" book, I have talked with inventor Bernard Breedlove and learned more about his right-angle Codetrol. Let's thus begin with that "update info" and Photo 3-1 and 3-2. First off, B. H.

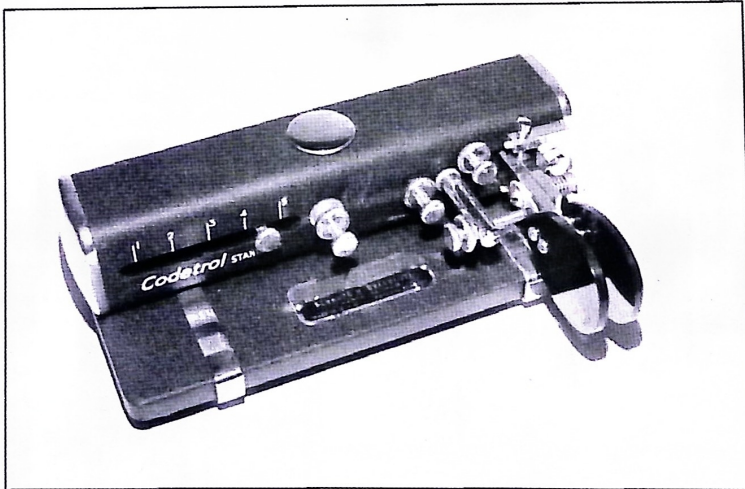


Photo 3-1 The unique Codetrol made by B. H. Breedlove during the 1950s. Adjustment screw on left (amidst speed scale) actually swings free of cover during operation.

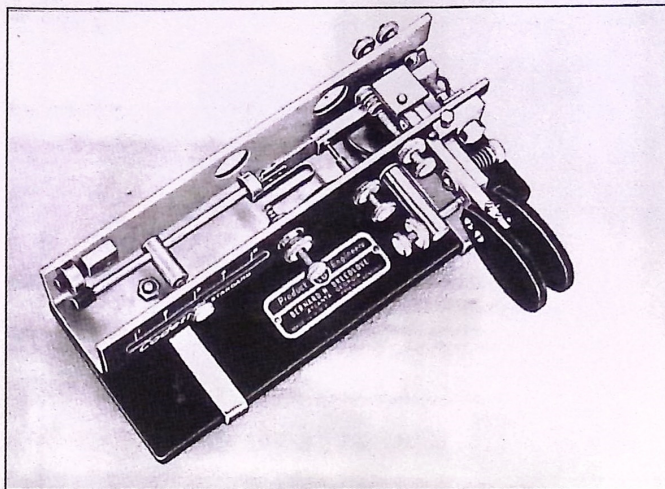


Photo 3- 2 Interior sketch of Codetrol. Note location of dash and dot contacts, pendulum and vibrating mainspring. A unique design indeed.

Breedlove has now retired to a small island off the Georgia coast. He has also sold or given away all his Codetrols and extra parts (sigh!). Bernard said most of his 200 Codetrols were sold to African and European amateurs, so maybe a few are still packed away in overseas shacks.

The Codetrol is a magnificent looking item featuring an enclosed right angle mechanism with all main adjustments easily accessible. The calibrated scale on the cover's front is used to reference dot speed. Behind that adjustment (inside the cover) is a regular pendulum and weight like used on a conventional bug. The "Codetrol difference" is a specially selected spring steel mainspring and heat-treated dot contactor spring for precise-spaced and heavy dots plus a dual pivot assembly for "flywheel action." The combination resulted in a very smooth handling key capable of sending fast code that, due to weighted rather than light/choppy dots, sounded slower than it actually was: a technique more manufacturers and bug users should have integrated into their keys. Binding posts for connecting a cable to a rig,

incidentally, are included on the Codetrol's right rear side.

J. H. Bunnell's Gold Another item or "mini line" I acquired more information on since "Keys, Keys, Keys" was published is J. H. Bunnell's legendary Gold Bugs shown in Photo 3-3. These 14-karat gems were primarily made as special achievement awards or retirement gifts, but owners say they handle good enough for daily use (what a way to go!). Notice two versions are shown in Photo 3-3: one has a split between the yoke and fingerpiece (for reversing arm travel direction when making dashes), and the other one does not have a split. Analogize this design to the Vibroplex Model X discussed in the previous chapter, and you can see the Gold Bug uses a single set of contacts to make both dots and dashes. Fascinating!

The big surprise came a couple of months ago when a fellow amateur sent me a photo of his Bunnell Gold Bug, which was solid brass. No, the gold had not been removed or forgotten: the key's brass finish was flawless and bright. The key's label

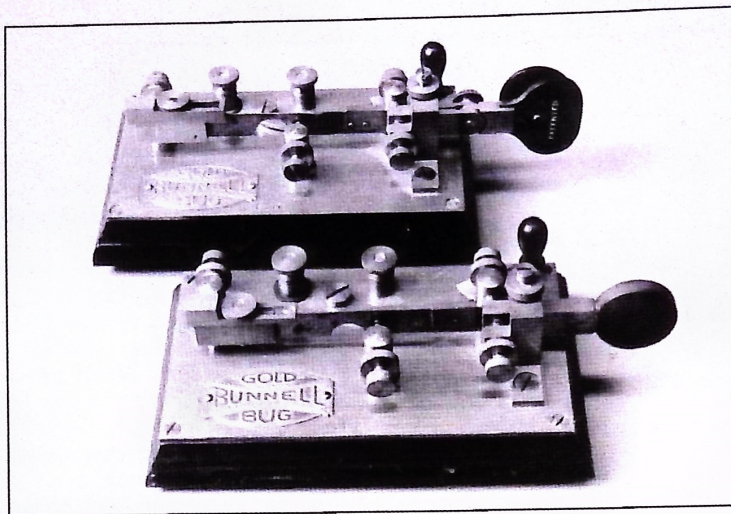


Photo 3-3 The ultimate finishing touch for any big-time CW station: twin gold bugs! These Bunnell 14 karat beauties sport a flat pendulum, square weight, and a custom-cut mainspring for accurate dot speed control. Nice. Keys owned and photographed by Bill Holly, K1BH.

was also inscribed "Bunnell Gold Bug". Do not ask for a "what happened" explanation: I do not have one!

Those Famous Mecographs

As discussed in the previous chapter, several companies designed unusual style bugs to "get around" Horace G. Martin's patents during the early years of semi-automatic keys. One of the first companies to successfully accomplish said feat was the Mecograph Company of Cleveland, Ohio and their first model (circa 1912) is shown in Photo 3-4. This key features a flat blade pendulum with dual weights on each side of its end. The pendulum is mechanically linked to the dot contactor arm which, in turn, taps against the left adjusting screw (beside circuit closing lever) to produce automatic dots when the fingerpiece is moved toward its right. This model also works by releasing rather than applying pressure on the pendulum like Martin's bugs of the same period. The company name is lightly stamped on the key's base. Notice the

spade-shaped piece on the key's rear section pointing toward a scale calibrated 1 through 6 according to speed of dots. One equals the fastest speed and 6 equals the slowest speed. This particular model is a deluxe all-brass version, and it is absolutely marvelous in appearance. A standard model with nickel plated upper parts, painted base, and barely visible stripes was also produced. Would it not be a super-thrill to use this gem with a deluxe transceiver? Wow!

The straight-arm bug shown in Photo 3-5 signifies a radical departure from Mecograph's usual styling and designs. Indeed, it is the only version of an in-line bug ever made by the company. Close investigation reveals a long dot contactor spring rather than the usual adjusting screw contact. Interesting, also, is the square pendulum with single weight and basic screw-type damper. This model differs from conventional semi-automatic keys in its single post-type yoke assembly and circuit closing lever on the left side. Stamped into the base is the inscription

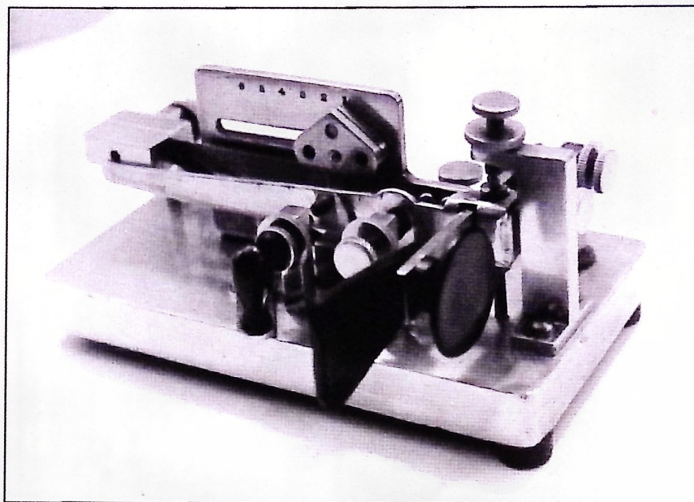


Photo 3-4 First model Mecograph manufactured in 1912 was brass. It features a flat blade pendulum with dual weights on each side of its end.

"The Mecograph Company, Cleveland, Ohio USA." This particular semi-automatic key is solid brass with a highly polished finish that looks great anywhere. The Mecograph had a short life, since Vibroplex bought out the company in 1913. There is also a strong but unconfirmed rumor the latter two Mecographs shown here were

made (by the Mecograph Company, no less!) after they were bought out by Vibroplex.

The McDonald Pendograph

Many of our amateur radio friends in Australia are true CW devotees, and that fact is accurately reflected in the impressive

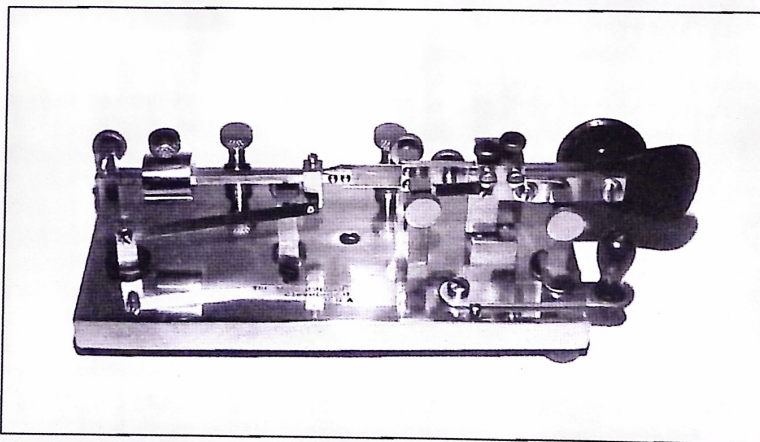


Photo 3-5 Rare in-line Mecograph bug. Notice the long dot contactor spring and square pendulum which are unique to this Mecograph design. Key view courtesy Gil. K9WDY..

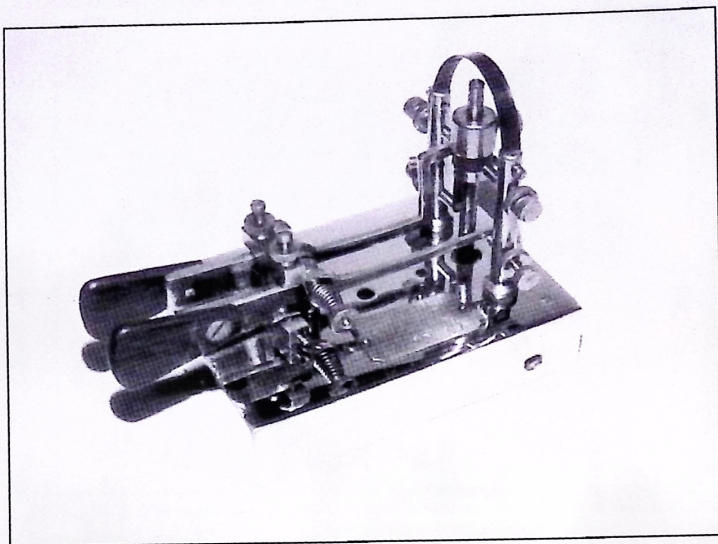


Photo 3-6 The Australian-made McDonald Pendograph Vertical. This key uses independently operating dual levers, with a dash contact on the pendulum's right bottom and the dot contact on the pendulum's left bottom. Full pendulum assembly is insulated from the base by rubber washers. Speed is varied by moving the weight toward the top for slower dots. Key photo courtesy Gil, K9WDY.

semi-automatic keys made "down under." The number of styles may be low, but the designs are terrific. Two of their most elite items are shown in the following photos. I should point out these gems are in the rare category and are not items found through usual sources. Indeed, they are now out of production (sigh!), and reside in some of the world's most noted collections. Ah, but we can all dream of using such masterpieces on the air with our deluxe HF transceivers today!

The Australian Vertical shown in Photo 3-6 features a base-swung pendulum and, to the best of my knowledge, this key was produced during the 1930s. I reason that because it makes dots by releasing rather than applying pressure to the pendulum like the regular Vibroplex bug. Although this key was made on the opposite side of the world from Vibroplex, the manufacturer apparently

honored Martin's patent rights.

Speaking of manufacturers, two identical models of this key have been noticed in different collections. One has a brass nameplate inscribed "McDonald's Pendograph, Patent 11389, Adelaide SA". The other model is stamped "PMG" on its base, apparently indicating the post master general's office or Australia.

The McDonald Pendograph is truly a work of art and simply referring to it as a bug or semi-automatic key is an understatement. Independently operating levers with separate top-pivot adjustments are used, and there is no iambic action. Proper operation depends completely on wrist coordination. The rear pendulum assembly sits on rubber washers that insulate it (and its associated dot/dash contacts) from the base. The top left screw adjusts dot arm travel, and the bottom left screw is the dot contact. The bottom right

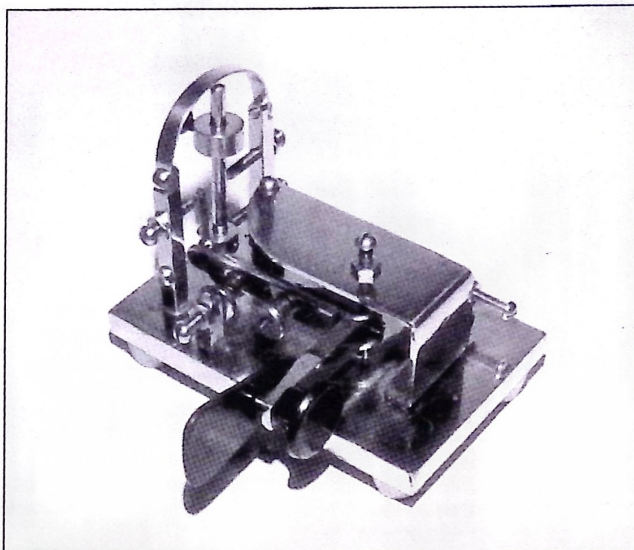


Photo 3-7 Right Angle Australian Vertical Bug. This delight uses a single lever, and an arm attached to the lever's left side relieves pressure on the pendulum to produce dots. Compare this model vertical with the previous figure and you will notice the dot contactor has been reversed in position. Key photo courtesy owner Gil, K9WDY.

screw sets dash lever travel, and the top right screw is the pendulum's damper. Notice the rubber ring between the dot contactor's chrome mounting ring and the (above mounted) weight. Damping action is achieved by allowing the pendulum's rubber ring to rest on the damper screw. Moving the weight toward the top, incidentally, slows dot speed. The pendulum's top chrome strap adds mechanical rigidity to the assembly and protects its mechanism. Tension-adjusting screws for each lever are attached to their outer edges.

A right-angle model with exposed mechanism was also made, and sported a painted base. That particular model (not shown here) used a pendulum swung from the top rather than the bottom, and a rod mounted at right angles to the dot fingerpiece/arm was used to relieve pressure on the pendulum. Needless to

say, any variety Australian Vertical bug is a collector's pride!

Right Angle Australian Vertical

If our previously highlighted dream did not steal your heart, check out the gem shown in Photo 3-7. This beautifully produced and quite compact item is another variation of the McDonald Pendograph made in Australia. It uses a single lever like a regular bug which means it is easier to handle, and was probably manufactured to answer popular demands for such an item.

A screw adjustment on the right back side sets dash lever travel, and the top-mounted screw sets pivot point tension. The pendulum assembly looks identical to that used with our previously highlighted in-line vertical, with some interesting variations. The dot contact spring is

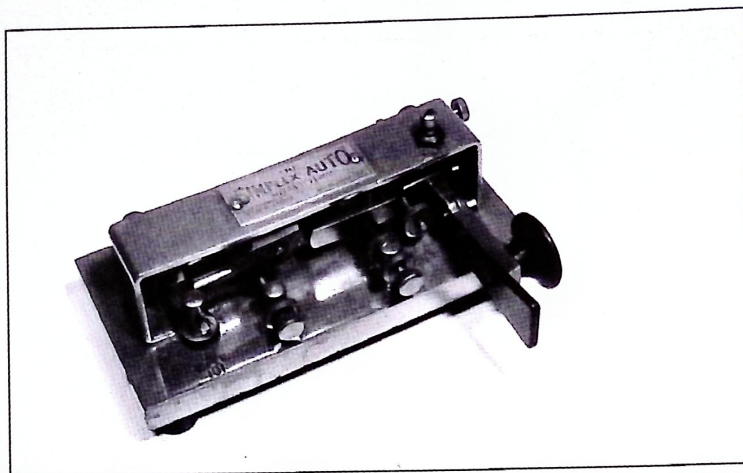


Photo 3-8 The classic Simplex Auto Right Angle Bug. This single lever semi-automatic key was made in Melbourne, Australia and is capable of pumping out some beautiful Morse when handled by a skillful operator. Key view compliments of Gil, K9WDY.

reversed and points up to mate with the top left contact screw, and the bottom screw sets pressure-relieving travel. The screw on the right side apparently functions as a pendulum damper. The rubber ring between the dot ring and weight used on the in-line vertical is missing on this right angle model, which means the pendulum snaps solid against the damper screw. Rubber washers insulate the full pendulum assembly from the base, and the chrome circular piece atop the pendulum adds structural integrity while protecting the mechanism. We have seen some magnificent verticals, but this one is absolutely breathtaking! If there is anything better than a vertical, it must be a Right Angle Vertical! Owner Gil, W9WDY, says he actually uses this key on the air and it handles great.

Australian Simplex-Auto Bug

An intriguing story is associated with the Australian-made Simplex-Auto Right Angle Bug shown in Photo 3-8. A couple of months ago I contacted Drew, VK3XU, on 30 meters and his CW fist sounded so

good I asked what type of key he was using. To my surprise, it was a Simplex-Auto Bug like shown in Photo 3-8. Ah--so we finally highlight a key that is not so difficult to find, right? Wrong! Drew just happened to purchase a Simplex Auto many years ago and has continued using the key because it handles good for him. Does not that story make you regret letting go of your own "first bug?" Take heart--most of us are in the same boat.

The Simplex Auto is a fascinating semi-automatic key with some noteworthy points for discussion. Its nameplate is enscribed "Simplex Auto, Manufactured by Leo G. Cohen, Melbourne Australia". Part of the mechanism is covered, but you can see the dash adjustment screw protruding from the key's right rear area and the pivot adjustment screw extending above the top cover. Look close and you will see the (short) dot lever releases pressure on the pendulum behind it to make dots. Notice, also, the contactor arrangement is a "reverse copy" of that normally used by Vibroplex. That is, the non-flexible contact is press-fitted to the pendulum and mates with a contact on the long flexible spring

extending from the bug's left side. There are three adjustments on the key's front: a knurled nut directly beside the lever sets dot tension, an adjacent screw and locknut sets dot lever travel, and the left-most screw and locknut (one with rubber washer on end) varies weight by moving the long dot contactor spring closer or further from the pendulum's contact. This key uses a single lever which makes it very easy to operate. The angled design also seems like it would be ideal for in-shack use, as it could be placed on the left side of a desk and your arm positioned in front of and parallel to the transceiver for transmitting. A second advantage to that position is visitors will immediately spot your classic showpiece when looking at the setup. As any big-time telegrapher will surely agree, if you've got it, flaunt it!

The German Novaplex

The neat little bug shown in Photo 3-9 was made in Germany during the early 1940s, and it is called the Novaplex. This semi-automatic key may look simple and

basic but make no mistake, it is a scarce item and a genuine collectible, especially among our amateur radio friends in Europe.

Like most German-engineered mechanics, this World War II key is quite precise and smooth operating. I understand from the few people that have actually used a Novaplex that it works as well today as it did 50 years ago.

The Novaplex has nickel-plated parts mounted on a brown bakelite base. Unlike many bugs, both pendulum-mounted and mating post dot contacts are not flexible. Additionally, the pendulum is thicker than usual and its rear-mounted damper is a simple nylon "bumper" on the end of an adjustment screw. The single moulded fingerpiece looks like it is shaped in the wrong direction, but actually fits one's fingers perfectly. Would this key not look marvelous beside an authentic World War II rig modified for operation on 30 meters today?

Telegraph Apparatus Company Bug

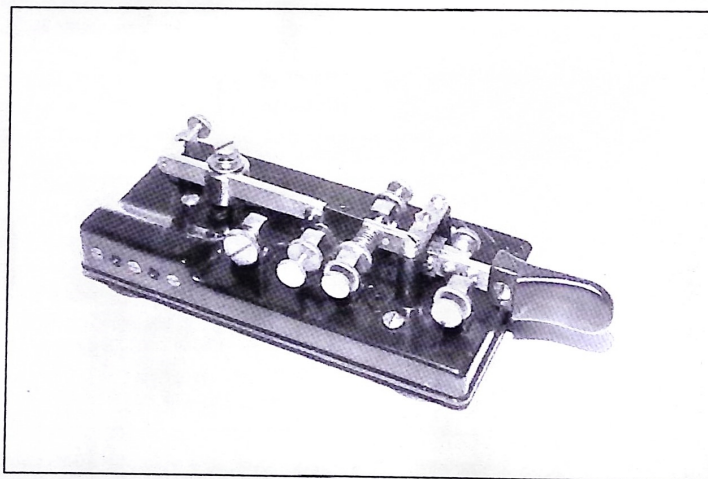


Photo 3-9 The neat little German Novaplex bug. Low-slung beauty is critical to adjust, but handles very good. Operators of the Novaplex attribute its smooth action to the molded fingerpiece. Key view courtesy Gil, K9WDY.

Long time residents of the "Windy City" may affectionately recognize the bug shown in Photo 3-10. This semi-automatic key was made by the Telegraph Apparatus Company in Chicago, Illinois during the 1940s, and it was apparently a popular item in that area for several years. When I featured this bug in one of my CQ "World of Ideas" columns, several amateurs stepped forward to say they too had one and liked its solid construction. Indeed, the Telegraph Apparatus Company bug is built to satisfy the most heavy-fisted Morse operator. It has a low-slung mechanism on a 4 inch wide base that sits perfectly on a table without "walking."

The yoke on this key is comprised of a chrome vertical upright piece with round center hole through which the main arm passes. Chrome tubes bolted to each side support adjustment screws for dot/dash travel and tension. A single larger-than-usual weight is used for speed adjustment and a center-pivoting circuit closing lever is mounted near the fingerpieces. This key is part of your author's collection, which means I often use it on the air. I find the

key has a very good feel with positive action and handles quite well.

The Signal Electric "Semantic"

Precious little information was available on the bug shown in Photo 3-11, but I am sure you would not want to miss viewing this delight. It is called a "Semantic" and functions as a semi-automatic key or sideswiper (often called a "Cootie Key") according to operator selection. Simply explained, a sideswiper differs from a semi-automatic key in the respect its horizontally-moveable arm is used to make both dots and dashes manually. Wrist movements to make an "L" (. _ .), for example, thus involves moving the fingerpiece to the right for a dot, to the left for a dash, to the right for another dot, and back to the left for the final dot. Needless to say, learning to use a Sideswiper took some practice (and a few drinks of the "juice" didn't hurt!). The Semantic was a dandy little item in this respect, because an operator unable to master the "Cootie" concept could simply

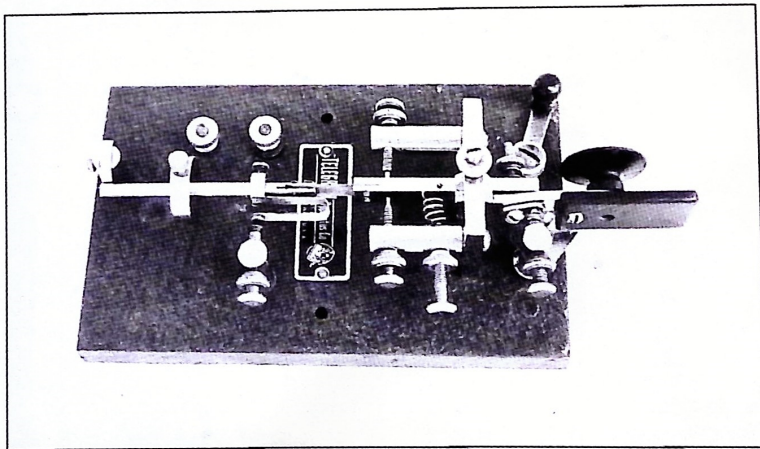


Photo 3- 10 The Telegraph Apparatus Company Bug made in Chicago, Illinois during eras past. Holes for mounting screws in base are really not necessary, as key has low center of gravity and wide base which holds solid on an operating desk.

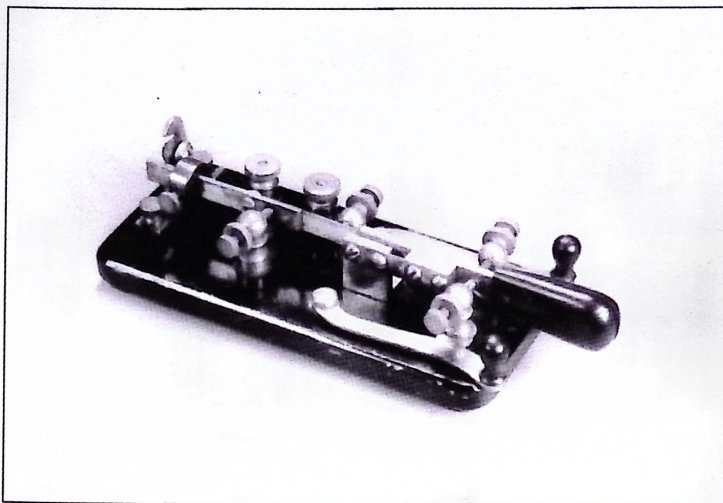


Photo 3- 11 1930-style Semantic "convertible key." When pendulum is locked by arm or rear damper and right side lever is closed, the gem is a Sideswiper: unlocking the pendulum and opening the shorting lever changes operation to a bug. Note clever use of rough weight on flat pendulum and omission of conventional style yoke. Key owned and photographed by K1BH.

switch over to semi-automatic operation. Study Photo 3-11 and you will see this key uses spring steel straps on metal supports rather than a conventional yoke and solid arm arrangement. The pendulum is a flat job with a round weight, a design later integrated into Buzzs Bugs from Australia. Changing operation between a bug and a Sideswiper involves swinging the clamp on the rear damper over so the pendulum can swing free and opening the right side's circuit closing lever. As shown in the photograph, the little key is set up for Sideswiper action. The left side circuit closing lever, incidentally, is used for continuous keying as usual. Owner Bill Holly, K1BH did not tell me how the Semantic feels during use, but judging by its appearance, I would say the key leaves something to be desired. Oh well, it is a beautiful 1930 classic to view at any rate (or from any angle)!

Hi-Mound Bug

The BK-100 bug shown in Photo 3-12 is a descendant of early Japan-made Swallow bugs, and a unique item with several impressive attributes. It has a flat pendulum like the Vibroplex Champion which makes it a very good semi-automatic key for newcomers, and its weight is adjustable over a wide speed range. Adjustments are fitted with locknuts and face inward so the complete mechanism can be protected by a mating clear plastic dust cover. A single fingerpiece extends from the dust cover's far end, and a small hole in the key cabinet's side permits routing an output cable to a transceiver. The base is well weighted and has a rubber bottom pad that holds solid to a desk under intensive use. I have a BK-100 in my own key collection. It handles very good and is the only bug that does not need to be stored in a plastic bag during nonuse.

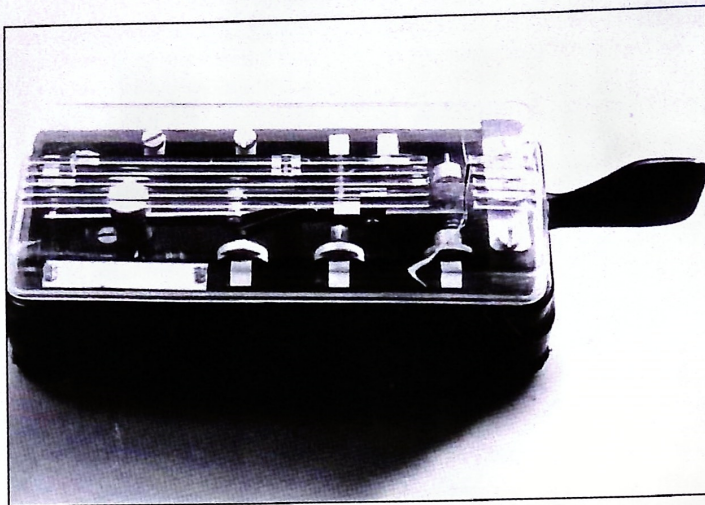


Photo 3-12 Hi-Mound BK-100 with clear top cover installed. Mechanism and all adjustments are mounted inside black case and thus fully protected from dust and dirt.

The Electro Bug

Although mechanical variations mark the primary difference in semi-automatic key designs, their "uniqueness" occasionally involves other concepts. Consider, for example, the unusual "Electro Bug" shown in Photo 3-13. This item utilizes a small pair of electromagnets mounted beside its pendulum and weights; their purpose being to assist the pendulum in producing evenly spaced dots. As a result, operator fatigue during long shifts should be reduced and more accurate Morse transmissions should be attained. Does the Electro Bug accomplish those objectives? It may have during the good old days, but not today. Does author Dave jest? Indeed not. Read on.

The Electro Bug was designed to operate with landline telegraph systems and vacuum tube-type transmitters. The miniscule current required for energizing its electromagnets was derived from the circuit to which it was connected. In fact, there is even a six-contact adjustment by the key's fingerpiece so an operator can set bug sensitivity and "line loading" according to its (connected) circuit. The electromagnets did not present a serious full-time load, however, as the key's swinging pendulum caused its dot contactor to "make and break" connections to both circuit and electromagnets rapidly (a real inductive kick generator!). When the Electro Bug is used with a modern solid state transceiver, voltage across key terminals drops from the 30 or 50 volt range to only a couple of volts.

In this case, the electromagnets never set up a magnetic field. The Electro bug thus becomes a bug-Bug. Far out, eh?

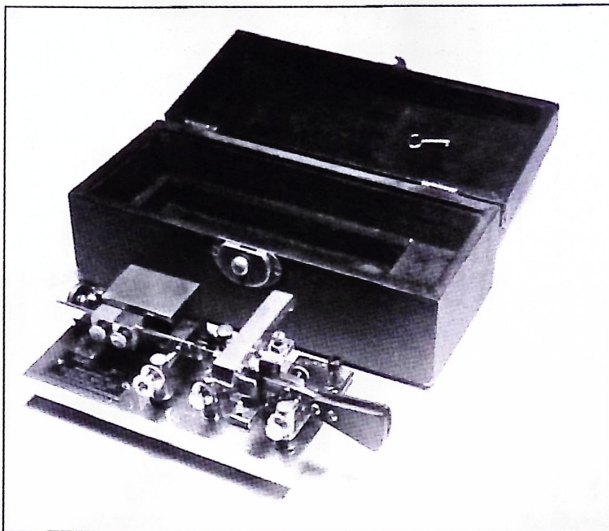


Photo 3-13 The unusual "Electro Bug". Item uses electromagnets mounted in case beside pendulum to assist in making dots while providing easy operation. Current drawn from keyed line is adjustable by stepper switch beside fingerpiece. A special felt-lined carrying case was also produced for this gem. Key photo via owner David Pennes, WA3LKN.

Summary

The area of unusual or "off the beaten path" bugs seems almost endless, and new varieties continue surfacing every few months. If you have such a gem and it is not featured in this book or our previous "Keys, Keys, Keys," send us a good clear photo for sharing with others. I will include it in a later issue and give you full credit. Now since you may think you have "seen it all" in bugs, check out the following chapter of the world's most incredible keys!

CHAPTER 4

Exotic Bugs and Keys

Heads up big-time CW aficionados: This chapter is dedicated especially to you, and it is wild! The following pages are loaded with breathtaking views of the world's most exotic Morse instruments, many shown here for the very first time in published form. I am talking about motorized and fully automatic bugs, wind-up bugs, three-lever bugs, incredible homebrew bugs and hand keys like you have never before seen. Even the photos alone are so hot they scorched copies of two adjacent chapters during printing. Strap on your seat belt and get ready for a CW overload. We are going for some real adrenalin pumping gusto! Enjoy!

The stand-up radio amateurs that made this chapter possible, Gil Schlehman, K9WDY, and Robert Butt, N1KPR, deserve a hearty round of applause for sharing

views of their heartthrobs with the world. Robert made his keys by hand in his machine shop. Gil's keys are one-of-a-kind antiques (so much, in fact, they are seldom stored at home). Ah--but just the sight of these tantalizing beauties escalates Morse communications to a new level of appreciation! Enough preliminary rap; now enjoy our visit to fantasyland!

The Starkins Motorized Bug

Our first spotlighted item is the Starkins motorized and fully automatic bug shown in Photo 4-1. This mechanical marvel was made during the early 1900s, and it was one of only two or three unique designs to beat Horace G. Martin's all-inclusive patents by generating code in a manner other than a vibrating pendulum.

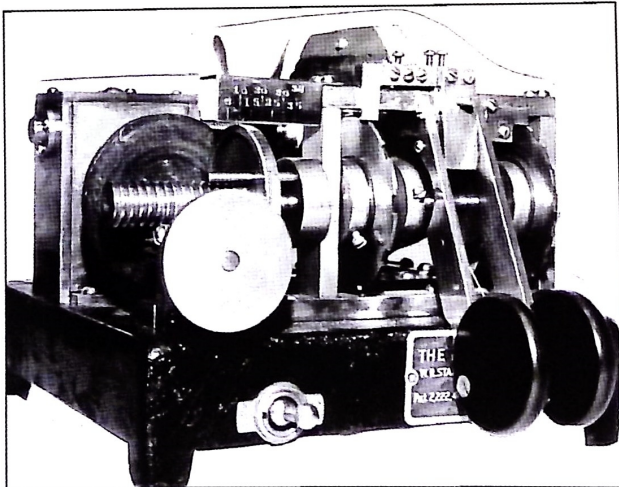


Photo 4- 1 The Starkins motorized and fully automatic bug. This electro-mechanical delight has independently operating dual levers with non-iambic action and rotating discs that make dots and dashes. Key view compliments of master key collector Gil Schlehman, K9WDY.

Basically, the Starkins system works as follows. An enclosed and rear-mounted motor turns a gear reduction drive which, in turn, rotates an approximate two inch diameter disc with a clutch-type facing. A small roller presses end-to-side against the clutch plate to make a right angle drive and turn the main shaft (which is positioned full width across the bug's center). Two and one-half inch brass discs with cutouts corresponding to dots and dashes are mounted on the main shaft (note one disc on each side of the keying levers). The discs are held stationary by small metal catches in the top of the mechanism's mount (look at the silver part right above each disc), yet shift free of the catch to make dots or dashes when a left or right fingerpiece is moved. Use your magnifying glass to study this mechanism. It is incredible. Also notice that the small roller

pressed end-to-side against the clutch plate can be shifted in position to vary keying speed. A small ruler-type metal strap above the roller is position-calibrated in words per minute. Perchance your magnifier is not strong enough to read the markings, they are 5 (left side) to 35 (right side) words per minute. Unbelievable, but true!

When asked how the Starkins motorized bug handled, owner Gil/K9WDY said "very good." He was quick to point out the importance of synchronized wrist action, however, and emphasized it "took some getting accustomed to." Although the Starkins has dual levers, it does not have iambic action like a modern paddle and keyer. Squeeze both levers, and it thus produces a constant key down condition rather than alternating dots and dashes. That description truly captivates ones

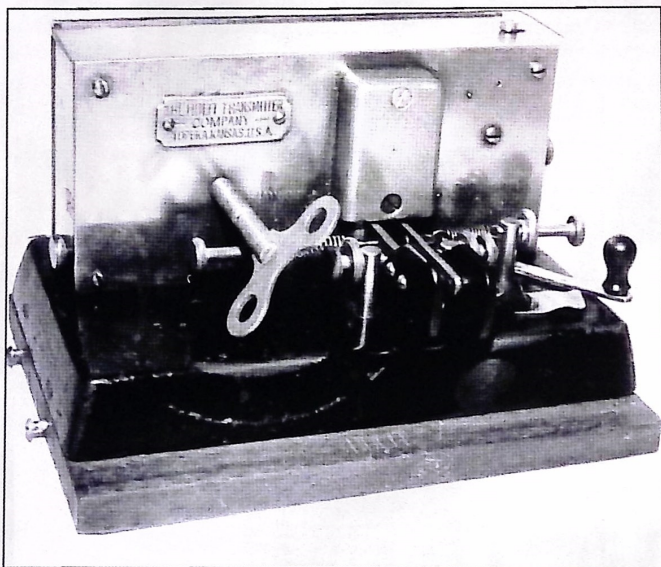


Photo 4-2 No, this is not a gag or novelty. It is an honest-to-goodness wind-up and fully automatic bug made by the Hult Transmitter Company in Topeka, Kansas during 1909. Tension and travel-adjusting screws with locknuts are positioned on each side of the key's lever, a speed control knob is mounted on the side, and the remaining mechanism is protected by a cover. Photo courtesy Gil Schlehman, K9WDY.

imagination but unfortunately we doubt ever experiencing the thrill firsthand. Only one or two Starkins are known to exist.

The Hulit Wind-Up Bug

This 1909 item shown in Photo 4-2, is the other key that beat Horace G. Martin's early "vibrating pendulum" patents. It is an honest-to-goodness wind-up and fully automatic bug. After winding it up by hand, you can transmit code for one or two minutes before the music box-type mechanism runs down. Smooth running? You bet! The Hulit has its own governor plus wheels and clutch mechanism very similar to our previously discussed Starkins bug and even produces the same 3-to-1 dot/dash ratio via rotating discs. The Hulit's assembly is protected from dust (and view!), however, by a neat metal cover.

The Hulit is primarily designed for

right handed use, but both hands get into the action. In other words, you wind it with your left hand while sending code with your right hand during QSOs. Now that is big-time hamming at its best! Stand this golden oldie on its end, and it even becomes an authentic sidewinder!

Owner K9WDY says he has also used the Hulit on the air and it has a great feel. The Hulit is easier to use than his Starkins because it is a single lever bug and "hand synchronizing" is not necessary.

The Hulit has dual fingerpieces, true, and it looks like it has dual levers, but they are locked together and move as one. We will accept Gil's words on this gem, as there are less than a half-dozen Hulits known to exist and it is thus doubtful "getting behind one" myself will ever become reality. Ah--but we can dream, can't we!

The Vailograph Add-On Bug

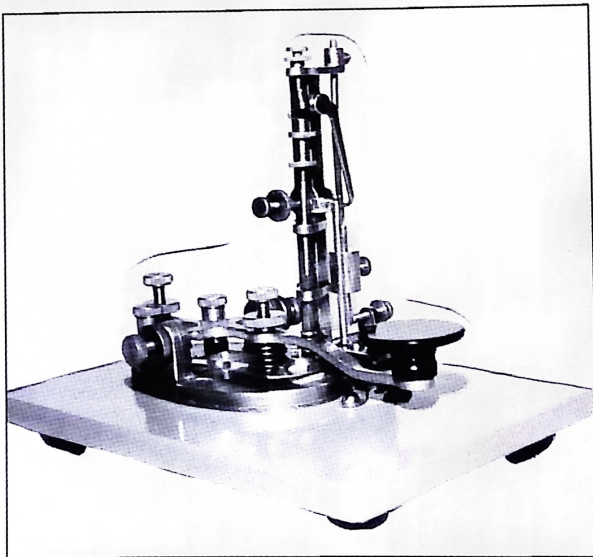


Photo 4- 3 The incredible Vailograph add-on bug. This upright tube-and-pendulum assembly attaches to a regular hand key and produces dots automatically when the knob is raised from its (new) center-resting position. Key..err..bug owned and photographed by Gil Schlehman, K9WDY.

A variety of combinations, modifications, and adaptations were tried and implemented during the heyday of bugs, but few were more incredibly unique than the Vailograph add-on item shown in Photo 4-3. This package of vertically-standing rods and levers attaches to a regular oval frame (J-38-type) key via its right side desk-mounting screw. The key's circuit closing lever is removed and the vacated screw hole is fitted with a support bracket, then a stabilizing screw is added to the key's base. The key lever's gap/travel and tension are then readjusted. The Vailograph's top-mounted tension screw is adjusted similarly so the lever assumes a new middle "neutral position" and becomes--a bug! That's right, friends: you press down on the knob as usual to make dashes manually and lift up on the knob to make dots automatically. Release the knob and it returns to its middle "neutral position" until again manipulated. Study the Vailograph's dazzling mechanism with your

magnifying glass, and we will explain.

Basically, the Vailograph works as follows. A movable rod held in position by the main vertical support (part with tension-adjusting set screw and lock nut on top) rides gently against/atop the key's lever. When the knob (and lever) is raised, it moves the rod up and thus causes the damper arm to relieve pressure on the pendulum's stop (The damper arm is visible to the right of, and between, the top tension screw and the middle-left dot-gap adjusting screw). The pendulum thus swings free; its built-in contact tapping the dot-adjusting screw's end and making dots until stopped by the damper arm. Look close and you will see this (right side) pendulum swings/pivots from the top, and a limit screw with lock nut near the bottom/key base restricts pendulum swing length. A long Vibroplex-looking weight (with set screw) on the pendulum sets dot speed. Moving the weight toward the top increases speed, and moving it toward the bottom slows down the dots. Finally, a wire from

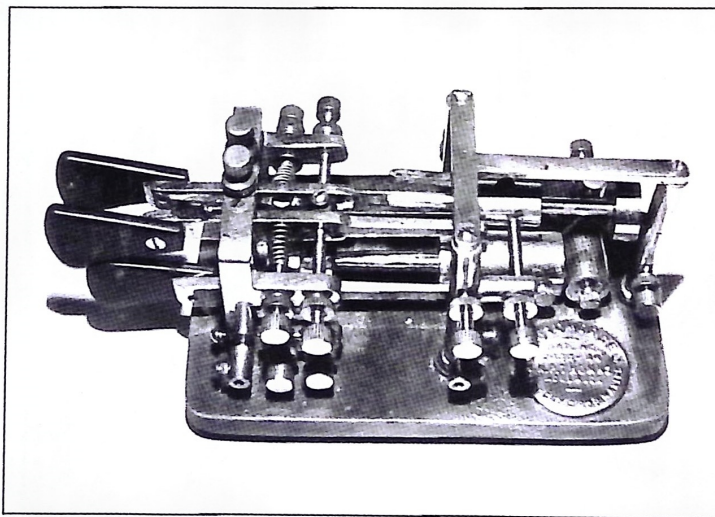


Photo 4- 4 The Triple Lever Automorse bug. This Australian-made gem provides instant selection of semi-automatic or fully automatic operation by swapping between levers. Bug view courtesy Gil Schlehman, K9WDY.

the dot contact screw's stabilizing strap parallel connects with the key's existing contact to complete add-on bug wiring. Is this gizmo not the "bees knees!" Really makes your fingers twitch to just think about using it on the air!

I asked owner K9WDY what it was like using the Vailograph, and he chuckled lightly. Gil explained he has semi and fully automatic bugs, sideswipers and regular hand keys, but the Vailograph always throws him for a loop. He then thought a minute and said "you really need to practice with it a month before stating an honest opinion." I would gladly accept that challenge, but doubt it will ever happen. Vailograph's are scarce as hens' teeth!

Triple Lever Automorse Bug

No, you are not seeing double. The bug shown in Photo 4-4 really has three fingerpieces. This little wonder from down under is the Australian-made Automorse, and it can be operated as a semi-automatic or fully automatic bug according to manipulated fingerpieces and personal

dexterity. The two top fingerpieces (and levers) work like a dual lever bug--dots are made automatically on the left, and dashes are made manually on the right. Move your index finger down to operate the bottom lever while continuing to use your thumb to operate the left top lever, and both dots and dashes are made automatically. Look close at the mechanism of this stouthearted "superbug," and you will recognize a normal (Vibroplex-type) weight on the left top pendulum for setting dot speed. The shorter right top lever does not utilize a weight because it only makes manual dashes. Now look at the ultra-large weight on the bottom lever's pendulum (the one positioned parallel to the bug's mechanism, and with light glinting off it). This massive weight sets dash speed (independent of dot speed, no less!). Now this is a real speed key!

When K9WDY acquired this classic item, the fingerpieces were broken (makes sense--the Automorse was made in Adelaide during the 1920s, and has obviously seen some hearty use and rigorous travels). Gil thus did a superb job

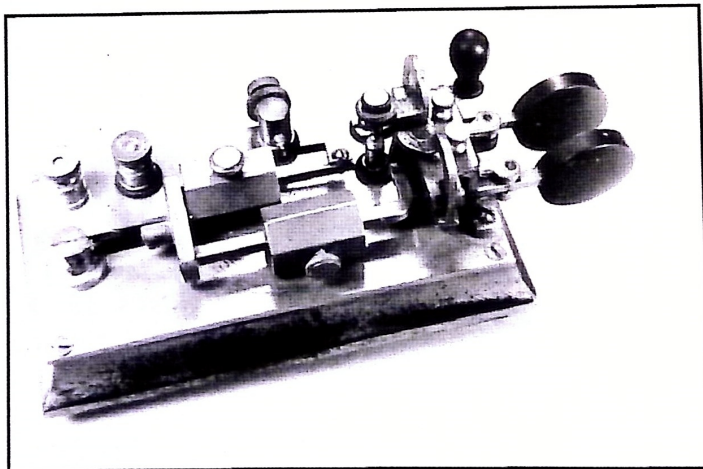


Photo 4- 5 The fully automatic Dunnduplex bug. This 1909 classic has independently operating dual levers, plus you can send code by using the fingerpieces or the pushbuttons atop the yoke. There is no iambic action; so "wrist sync" is vita. Bug view compliments of Gil Schlehman, K9WDY.

of making the good looking fingerpieces now showing on his Automorse.

When asked how the Automorse felt during use, Gil explained that although he used single and dual lever bugs and sideswipers of different types, this one is always a wipeout. He also says he could not honestly visualize anyone mastering it enough to send proficient code on the air today. Hmm...maybe this critter is responsible for those off-the-wall CW fists we hear trying to tame wild bugs on 40 meters. Doubtful, however, as finding even one Automorse on each continent of the world is being optimistic. What a gem!

The Dunnduplex Fully Automatic Bug

The 1909-produced Dunnduplex shown in Photo 4-5 is another classic of quite unusual design, and it also challenged Horace G. Martin's early bug patents. Dual

levers and dual weights are combined with a single set of contacts (on right side) to make both dots and dashes automatically but look close--the weights are similarly sized. How can that work? The metal coupling bracket behind the weights lets the left one swing independently to make dots but combines the weights' mass and their shaft lengths to make (three times longer) dashes.

Ah--but this key's angled dot arm, square shafts, and hex-shaped weights with side locking nuts are not the big surprise. Notice the two chrome knobs atop the main yoke--they serve as alternate fingerpieces so you can send code by pressing down on each with your index and middle fingers (the famous "cricket" concept). Here is the perfect key for nervous-habit table-top drummers! The pushbuttons activate the levers just like the fingerpieces. In fact, an agile user might even operate one pushbutton and one fingerpiece to really make CW fun. That

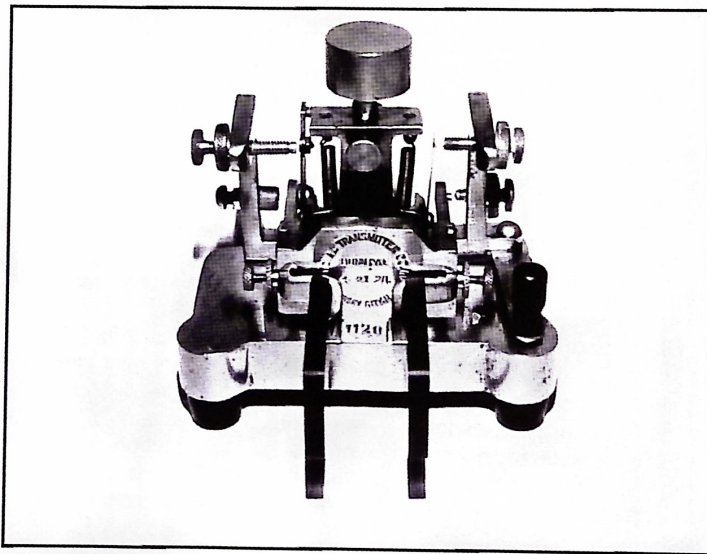


Photo 4- 6 The National Transmitter Company's "shortcrop" bug. This mini-vertical sports a bottom-supported pendulum and separate operating dot/dash levers, which requires a respectable amount of practice to use successfully. Bug view courtesy Gil Schlehman, K9WDY.

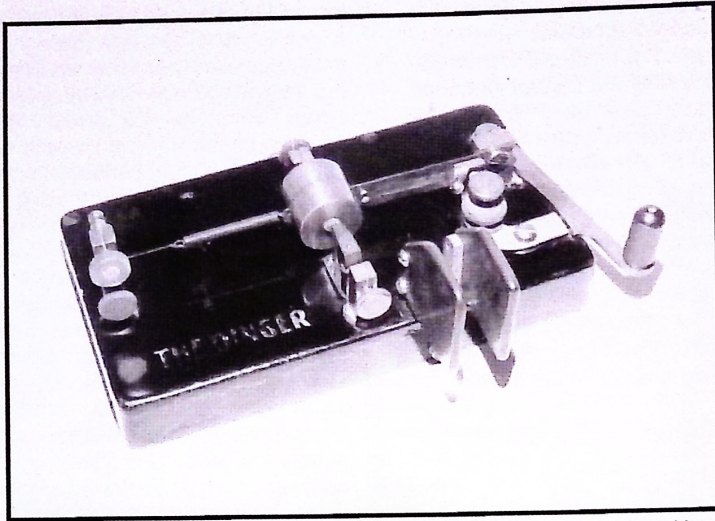


Photo 4-7 The unusual D & K "Dinger" bug. Weights are fixed in position, and speed is adjusted by changing tension on left side string. Notice fingerpieces extend from side rather than end of base: perfect for solid footing on a desk. Bug view courtesy of owner Gil Schlehman, K9WDY.

would require some exceptional dexterity, however, as this bug's dual levers/pushbuttons operate independently and do not incorporate iambic action. Mistakes thus result in a solid key-down condition rather than alternating dots and dashes. This remarkable little piece of history was made by the Thomas J. Dunn Company in New York, and now resides in the collection of K9WDY (that is quite a heartthrob, Gil!).

The National "Shortcrop" Bug

The stubby little bug posing in Photo 4-6 was made by the National Transmitter Company in Jersey City, New Jersey during the 1920s and it is almost a 3-inch cube. The base's back end has been whacked off to produce a "shorty," and the dot-producing pendulum has been reorientated vertically rather than horizontally. The overall result is an ultra-compact bug that fits conveniently onto the most crowded

operating desk. Clever!

This mini-vertical bug's pendulum is suspended from the bottom rather than the top, thus balancing to produce smooth automatic dots becomes a mite tricky. National solved that dilemma by using dual springs installed on each side of the vertical mechanism. The weight atop that mechanism can be adjusted up or down (and secured in position with the set screw below it) to vary dot speed. Adjustment screws on each side of the key set arm travel and contact weight.

The National mini-vertical is a neat little bug that really captures one's attention, but it is also a dual lever key without iambic action. Acquiring the dexterity and CW coordination to use this pup on the air is thus challenging. Ah--but it is sure a beauty to view!

The D & K "Dinger"

The wide variety of designs in semi-

automatic keys truly inspires CW buffs to visualize "rolling their own" in a simple yet totally unique manner. Such is the case with the D & K Dinger shown in Photo 4-7. This neat little bug has a single set of contacts, leaf spring-type pendulum, fixed-position weights, and near-middle mounted fingerpieces to produce a most intriguing Morse instrument.

Notice this bug's leaf spring pendulum is sandwiched between the dual weights and a regular spring is attached to its end tip. A piece of ordinary string is tied to the spring's other end and wound around a speed-adjusting screw on the bug's left side. Tightening the screw increases tension on the string, spring, and pendulum thus causing it to increase vibration rate and produce faster dots. Owner K9WDY points out the Dinger's operating concept almost defies mechanical logic (as Gil says: "it looks like it will not work, but the Dinger actually handles very well"). Fascinating!

The more you speculate on the Dinger's dual lever design, the more it

tempts you to try homebrewing a similar version. Moving the right fingerpiece, for example, actuates a lever that presses a flexible arm with an end-mounted contact against the pendulum's contact to make dashes manually. Moving the left fingerpiece releases a lever holding the pendulum off-center (via a bar through its weights), thus tapping the pendulum's contact against the flexible arm's contact to make dots automatically. Hmmmm...one of my old junk key's bases has screw holes positioned just right for mounting a mechanism like the Dinger, there are a couple of extra weights in my desk drawer, and there is a big-arm relay in my junkbox. By jove, the first version of Doctor Dave's Dandy Dinger is on its way to becoming a reality!

The Abernathy Bug

The trim little starlet shown in Photo 4-8 was made by The Abernathy

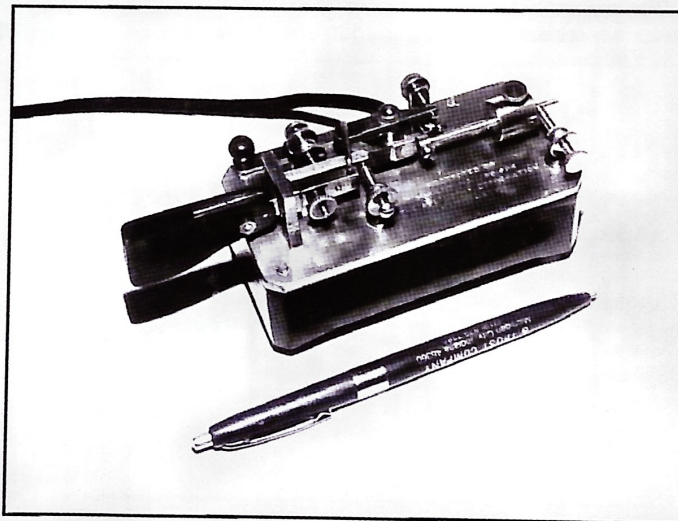


Photo 4-8 You are looking at one of only three Abernathy bugs ever produced. Nice, eh? Notice its unique arrangement for using only one set of contacts to make both dots and dashes. Photo courtesy of proud owner Gil Schlehman, K9WDY.

Corporation of Hampton, Virginia in 1916 and it is special in three ways: its design, its brief production history, and the way K9WDY acquired this gem. Notice the single dot/dash contact arrangement on this bug's left side. When the fingerpiece is moved toward its left, a top-mounted coupling rod transfers that motion to one end of a pivoting lever. A contact on the lever's other end then moves against the main keying contact to make a manual dash. As this occurs, the right side's set screw limits dash lever travel and the pendulum stays "at rest" against its rear-mounted damper screw.

When the fingerpiece is moved toward its right, the pendulum's spring contact bounces against the pivoting lever's contact which in turn "feeds through" to the main keying contact on the bug's left side. A string of dots are thus produced. How about that arrangement for double action CW fun!

Scrutinize this bug's workmanship, and you will discover several more interesting points. The adjustable damper screw, for example, is precisely that--a

chrome and fully threaded screw with locknuts. Several of the parts in this bug look "store bought" except for the main yoke, which lacks a pinion screw and lock nut. Intriguing, indeed!

Abernathy invested some heavy-duty time designing and securing a patent for this bug, then equipped each of their three salesmen with a prototype and began setting up for production. Vibroplex immediately learned of the Abernathy operation and brought them down under claims of infringing on "X" model patent rights. After producing only three bugs, Abernathy thus bit the dirt. Pity--competition is the father of innovation.

During a friendly conversation, Gil (K9WDY) learned Bill Holly (K1BH) had an Abernathy bug. Bill would not sell the bug and stipulated he would only part with it for a Vibroplex Vertical Bug. Gil agreed, and that Upright/Wirechief's key is the one shown in Chapter 1 and in Bill Holly's book "The Vibroplex Story" (published by Vibroplex). This brief story re-emphasizes a fact I have stated several times: "Big-time key collectors are seldom moved by

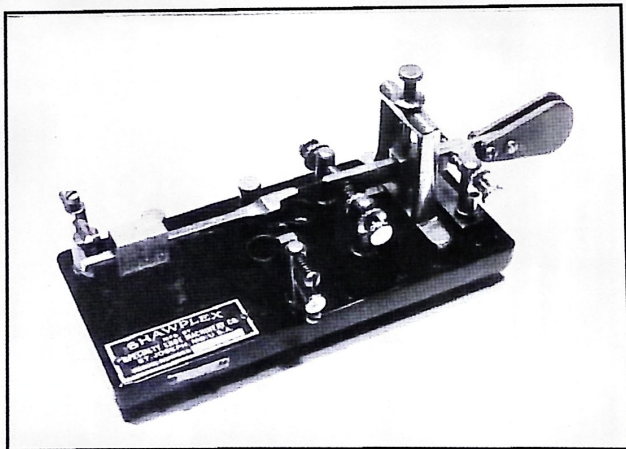


Photo 4- 9 Look close at the nameplate on this Shawplex bug. It was made by The Specialty Shoe Machinery Company in St. Joe, Missouri during 1919. Amateur rAdio's original "shoes!" Bug view compliments Gil Schlehman, K9WDY.

cash offers and seldom sell keys. Trading "wanted items" is the name of the game!"

The Shawplex Bug

Your attention and magnifying glass is now directed to the Shawplex bug made by The Specialty Shoe Machinery Company of St. Joseph, Missouri during 1919 and shown in Photo 4-9. We knew companies of all types jumped on the semi-automatic key bandwagon during its heyday, but a shoe company making bugs is really surprising! Maybe it points out that amateur radio's first shoes per se were keys rather than linear amplifiers! Specific information on the number of Shawplex bugs made and their length of production is unknown, but this item was obviously another challenger of Martin's patents and Vibroplex bugs. Competition did not move Vibroplex out of the game, however. They continue to be one of the top names in bugs and paddles today.

The Shawplex design is not a radical departure from conventional bugs, but it

has some interesting points worthy of mention. The simple damper post arrangement and dot tensioning spring with adjusting nut mounted on the dot travel limiting screw (on left leg of yoke), for example, are two features included in (later produced) Speed-X bugs. The Shawplex pendulum is also thicker than usual: apparently to slow dot speed and make a more user-friendly key. Overall workmanship is outstanding, and owner K9WDY says the Shawplex is quite enjoyable to use (lucky dog!).

Postal Telegraph Bug

Although extensive information regarding the semi-automatic key shown in Photo 4-10 was not available before publication, the base-engraved label says it all "Property of Postal Telegraph Cable Co." Postal Telegraph Company was formed by Clarence MacKay and some business associates in 1881 as a competitor to Western Union. The company was eventually acquired by Western Union

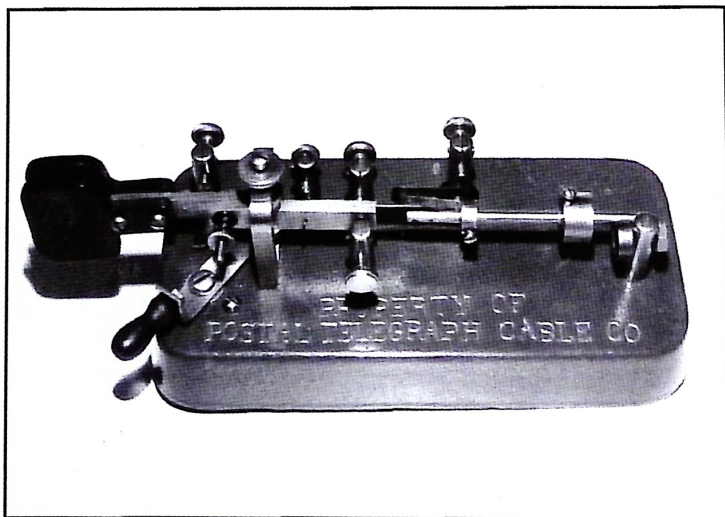


Photo 4- 10 Here is an interesting bug you do not see often. Notice the label. It was owned by Postal Telegraph Co. formed in 1881 and sold to Western Union in 1943. Key view compliments of owner K9WDY.

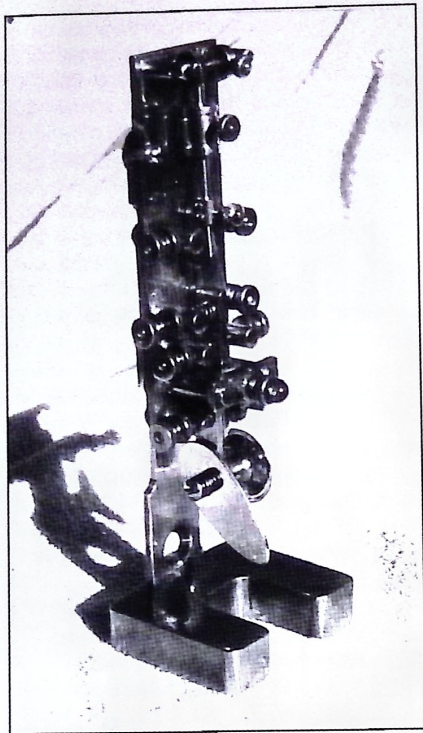


Photo 4-12 Combination midget and vertical bug made by Robert Butt, N1KPR. One-of-a-kind masterpiece is an "improved reproduction" of a better job than many companies do in making replicas of famous old cathedral-style radios! Photo by N1KPR.

in 1943. And picturesque items they were. Notice the trim and proper layout and "squared off" fingerpieces. Notice, also, support posts for dot/dash contacts and various adjustments are split at the top and fitted with set screws rather than locknuts on adjusting screws. Otherwise, this semi-automatic gem looks quite conventional in design.

Owner K9WDY says this key handles as good as it looks. You can really appreciate that description when viewing the bug in color. It has a high polished upper mechanism sitting on an olive green base and its overall appearance is quite

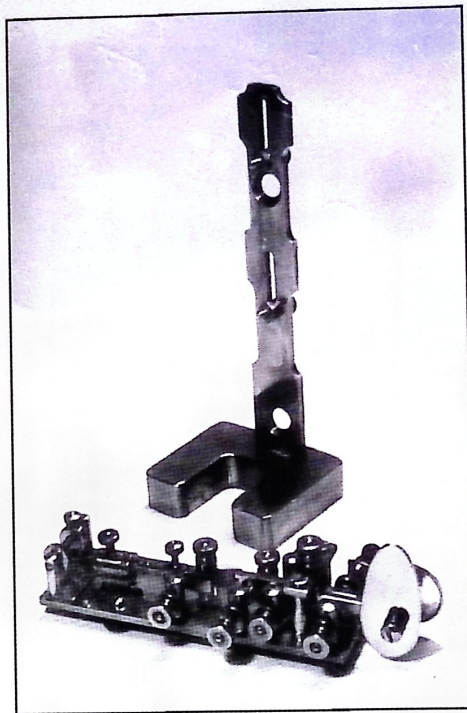


Photo 4-11 N1KPR's combo bug removed from its vertical stand and reset for horizontal use. Photo by N1KPR.

striking.

The Fascinating Keys of N1KPR

We now shift focus to highlight the magnificent keys of Robert Butt, N1KPR, and they are indeed marvelous. Robert is a key collector, professional machinist, and a connoisseur of mechanical art as applied to Morse-related items. His philosophy in acquiring world-class keys is simple and effective: if he cannot find or afford a desired item, he makes it! Each one of Robert's handcrafted replicas of telegraphy's most famous keys thus represents numerous hours work and a sincere devotion to perfection. We are sure you will agree N1KPR's reproductions are

even better than the originals from which they were fashioned or inspired. Enjoy the views of these unique and amazing keys!

Midget and Vertical Combo

Our next item of awe and envy is the combination midget and vertical bug shown mounted on its stand for upright use in Photo 4-11 and removed from its stand for horizontal use in Photo 4-12. This key, its mount, and even its fingerpieces are solid brass--all handcrafted by N1KPR. The masterpiece is fashioned similar to Vibroplex's rare midget bug and "Wirechief's key" with some interesting expansions. It has, for example, a triangular rather than rectangular-shaped mainspring for slowing dot speed within adjustment range of the pendulum's weight. Filing a large cutout in a bug's mainspring was a little-known but useful measure during eras past, but Robert's "trim both sides near the pendulum" concept seems even better! A "tailored" mainspring has another often unrealized benefit: it permits

setting a key's weight closer toward the yoke/pivot point for a particular speed, thus minimizing "choppy dots" while producing a light tactile feedback that feels great during use.

Additional points of glamour in N1KPR's midget/vertical include super-fancy adjustment screws and locknuts, knurled damper nut on threaded rod between rear posts, high-gloss finish, and small rubber feet for desk use. The feet are attached to the bug's edges so they clear its mating stand when mounted horizontally. Likewise, fingerpieces are simply quick-repositioned 90 degrees so they stand parallel with a table when the key is vertical. I asked Robert if switching between horizontal and vertical operation was that simple, and he said yes while adding "the bug's dot tension and weight also require slight readjusting, and it handles terrific in either position". Visualize using this gem with your modern transceiver--truly the pinnacle of hamming fun!

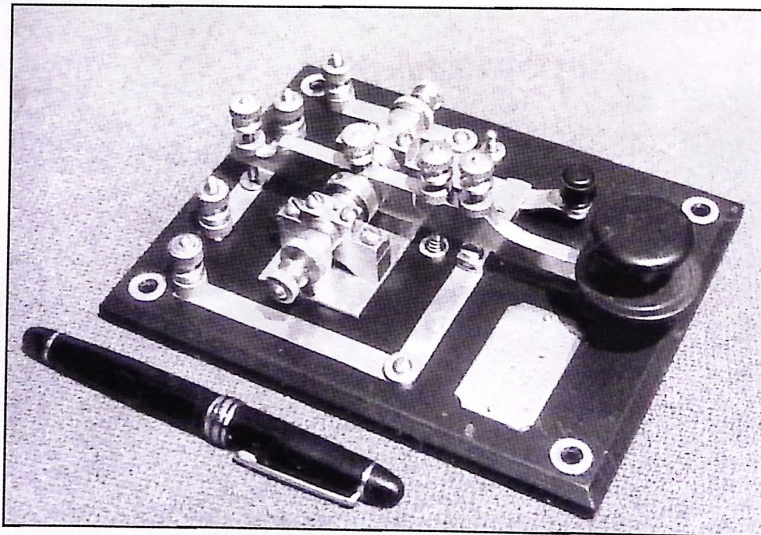


Photo 4- 13 N1KPR's amazing "Apex" features axial, radial and lateral bearings to make a super hopped-up version of a top-line 1890-style key.

Apex Key

Robert Butt's quest for classic Morse items also extends into the area of straight/hand keys, and his no-holds-barred homebrewed "Apex" shown in Photo 4-13 supports that fact. As Robert explained to us: "I wanted a key that looked like it came right out of a telegraph office of the late 1800s or very early 1900s with maybe a little overkill just for fun." Needless to say, he accomplished that objective in high style!

The Apex key sports a very elaborate brass mechanism mounted on a hefty black base with reinforced screw holes for securing to a desk. It includes a side-mounted switch for the pole changer concept, meaning selection of whether the key closes its connected circuit when the arm and knob are "down" or "up" (reverse CW, anyone?). Study the key's wiring and you will see its pole changer switch also doubles as a circuit closing lever for tune-up with old-style ham transmitters.

Surely the Apex' most incredible

design features are its triple bearings. We will point them out for clarity. Your attention (and magnifying glass!) is thus directed to the key's main pivot assembly. There is no shortage of screws, bearings, and locknuts in this gem--it is loaded for action! The outermost bearings (ones closest to outside set screws on pivot arm) are axial bearings. The little rectangular blocks with straight-slot screws in their top are radial bearings, and the round pieces immediately adjacent to each side of the main arm are lateral bearings. N1KPR's Apex is truly an incredible key!

QRP "Pocket Key"

Let's now shift down, down, down in size and focus on N1KPR's little "QRP key" shown in Photo 4-14. This pint-size gem measures approximately $\frac{3}{4}$ " x 2", and its stabilizing base for operation is also the sliding box lid in which it is carried. That's right--a fully-protected and smooth operating "pocket key" smaller than a cigarette lighter! Close attention to fine

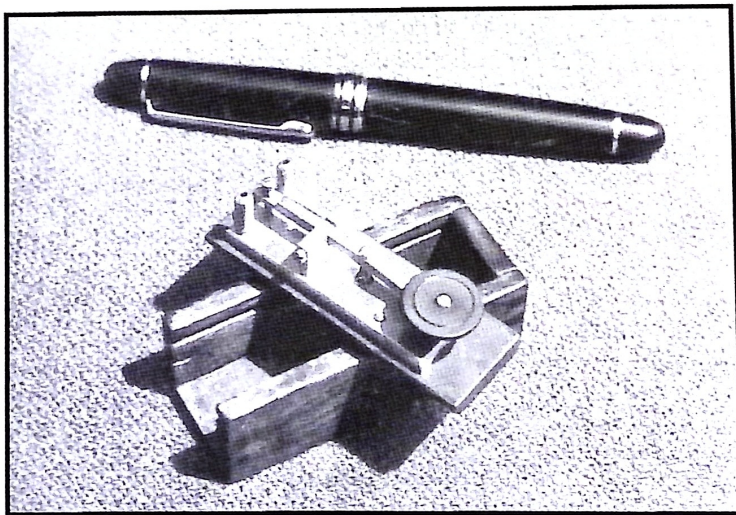


Photo 4-14 This little tyke is a "QRP key"; it measures only $\frac{3}{4}$ " by 2", and stores in its own carry box. Key made by N1KPR.



Photo 4-15 Few people could believe a working key could be made small enough to fit in a pocket watch case, but here it is! Details of this micro gem in text. Photo by N1KPR.

detail is quite apparent in this QRP key's design, and it even includes accurate gap and tension adjustments. Finding a straight-slot screwdriver small enough to mate with this delight is a challenge, but that is beside the point. Owning a micro-key to use with a micro-rig is sheer ham pleasure!

Pocket Watch Key

Enjoying miniature keys is similar to munching potato chips--it is difficult to stop with just one. N1KPR shares our philosophy on that viewpoint

but, like most key collectors, he finds locating "purchasable" miniatures a challenging task. Robert's solution is thus simple--make them! Yes, and his handiwork in this area of jewelry-size keys is quite impressive. Look at Photo 4-15, for example, and check out his homebrewed micro key that fits into an empty pocket watch case. Now that is one small key! Robert meticulously crafted some small pieces of brass to make the mechanism and base, even tapped tiny holes in the arm, and assembled the gem using screws salvaged from old eyeglasses. The knob was made from a shirt collar button.

Gent's Key

Continuing our photo tour, let's now discuss the miniature keys shown in Photo 4-16. Robert explained his enthusiasm for making the lower key as follows: "I wanted a clean little key a gentleman could slip in his vest pocket and feel proud when displaying or using it anywhere. This one filled that requirement to a tee." The hand-made key has an all-brass mechanism mounted on a synthetic ivory base and

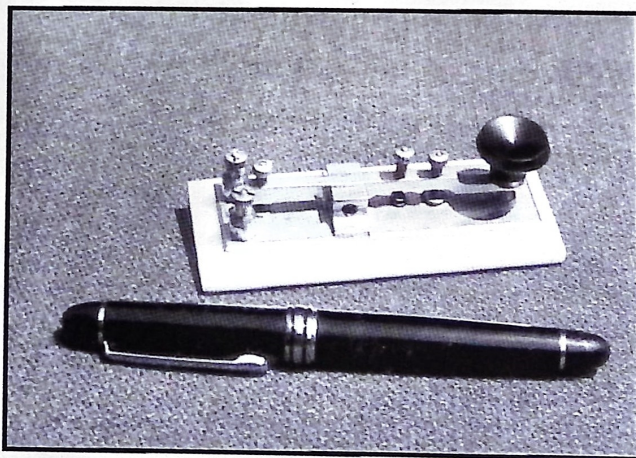


Photo 4-15 Trim and sophisticated "Gent's key" made by N1KPR. Brass mechanism is mounted on synthetic ivory base. Item fits comfortably in a vest pocket.

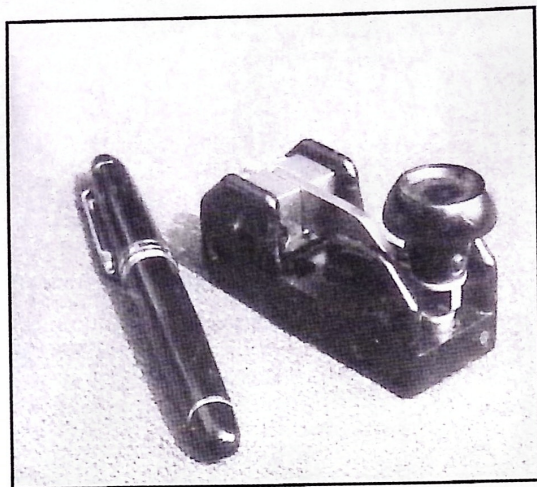


Photo 4- 17 Recognize the items used in this key homebrewed by N1KPR? The base is a fuse holder and the knob was removed from an old car radio. Read about it in the text.

topped with a concave black knob. The key has adjustments for both tension and gap, rear binding posts for a connecting cable, and it has actually been used for on-the-air QSOs. Jolly good show, Robert!

Fuseholder Key

Concluding this chapter on a lighthearted and upbeat note, we now discuss an exotic (well, almost!) miniature key you can duplicate at home. Call it a radio store equivalent of my own Wild Woody WARC key, N1KPR's encouragement for getting started in homebrewing keys, or just call it a fancy "start/stop switch." Use your imagination and ingenuity to fill in overlooked details.

The item in Photo 4-17 can be duplicated or at least "replicated" (depending on your ability to scrounge parts from old radios or tvs). Perchance you do not recognize the key's main components, here is the story. The base is an old fuse holder, the knob was salvaged from an old auto radio, and the arm was

part of the radio's pushbutton mechanism. Additional parts were made or adapted from various and sundry other items, so use your own improvising skills to complete assembly of a similar key. Through skillful planning and dinking, you will acquire a neat little rear-pivoting key sporting directly-beneath-knob contacts.

That winds down this chapter's views of exotic keys and bugs, but more fascinating photos and discussions of amateur radio's favorite accessory are included straight ahead. Flip the page, read on, and you too will surely agree CW is alive and thriving on today's shortwave bands. Indeed, keys and CW are classic communication art forms of timeless proportions!

CHAPTER 5

QRP Keys And Paddles

This chapter is, like its featured keys, small yet loaded with excitement. Indeed, the popularity of miniature keys has increased tenfold during the last two or three years. Why? Originally it was due to their aire of mystery as "spy keys" used by unknown forces and secret agents. Today, miniature keys are being hailed as ideal traveling companions and the finishing touch for QRP rigs (a really hot combo). I must agree, as I mix using several miniature keys with both my home and portable rigs, and they are a blast of fun!

In an attempt to please everyone, I included a mix of mysterious, scarce, humorous, homebrewable, and available-new-by-mail-today goodies in this "Pocket CW" chapter. I wanted to include information on where to find various miniatures, as many amateurs are anxious to start "tiny key" collections, but no special ideas or notes apply here. Quite frankly,

miniatures are hard to find and seem to surface in a totally unpredictable manner! Not only do I wish you success in finding one or more, I will also show you how to quick-make your own miniature right now. Read on!

Dynamic Duo

Photo 5-1 shows a pair of neat miniature "pumpers" size-referenced to a thin ball point pen. Information is hazy, but I understand the key on the upper-right was actually made in Great Britain and used in WWII particularly with the B2 Spy Set. It then surfaced several years later in India where it was possibly used for testing telegraph lines, as it has contacts for both "make and break." The key measures 2.5 by 1-inch, its arm pivots from the rear, and it handles great.

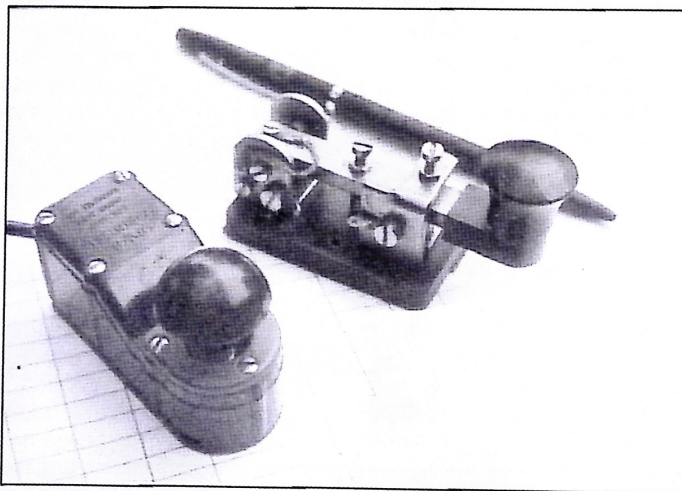


Photo 5-1 Dynamic duo of miniatures features British B2 spy set key with smokestack knob (upper right) and British key originally manufactured in U.K. (left). Both keys are only 2.5 by 1 inch in size.

The left key was made by McMurdo of England for use with the A13 Larkspur HF set manufactured in the U.K. 1961-1978. I removed one gasket from around the knob's contact for better action, and tension/gap adjustments are accessed by removing the top cover. That cover, incidentally, bears an "AWA" (Australia Wireless Association) insignia. Probably manufactured and used by the Australian Army at one time, also. This little delight measures 2.5 by 1-inch, it is rugged, and nice for beach use during vacations.

Delights From Afar

Two more attention grabbers are shown in Photo 5-2, and both keys handle even better than they look. The left gem was a gift from fellow collector JN1GAD, and it resembles a miniature J-38. Notice the center-pivoting arm with plastic shroud between knob and fulcrum, adjustments for gap and tension, and small base with screw-down holes. This key is a treat!

The right item is a miniature Russian key. It measures 2 by 1-inches, and looks almost identical to a popular larger model Russian key. Adjustments for gap and tension are accessed by removing the top cover. This key is terrific fun to use, but it was hard to acclimate to the U.S.; it transmitted Morse in Russian the first week I used it. Would Dave jest?

Smaller And Smallest

Ah, now we get to the really petite jobs, and they are dolls. The upper key in Photo 5-3 is one of four removed from a commercial telephone test unit, it is exceptionally small (1.75 by .5 inches), and handles very good. Wiring connections are through long screws extending below the base. I saw another one of these keys at a Texas hamfest but hesitated to buy it...for 50 dollars. The lesson here? Preplan your expenditures, and jump when an opportunity appears!

The lower key in Photo 5-3 is very

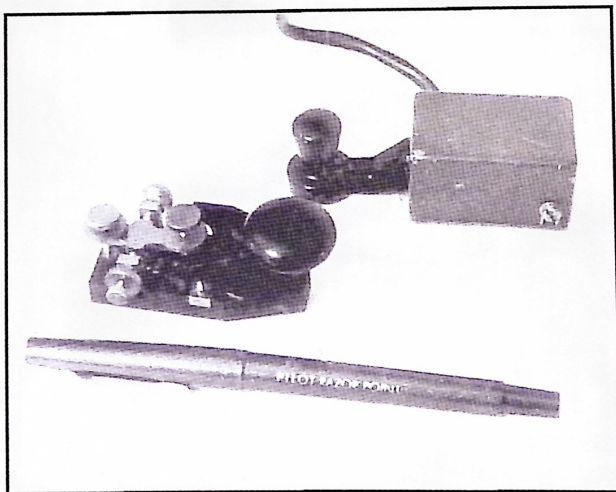


Photo 5-2 Two semi-rare and prized miniatures. Left item is Japanese key made similar to our J-38. Right item is Russian key with fully adjustable mechanism beneath protective cover. Both keys handle exceptionally well.

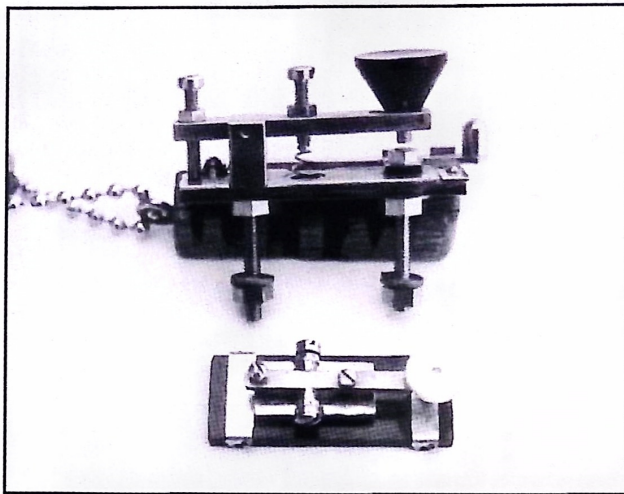


Photo 5-3 Upper key in this photo would really pass for a spy key, but it actually came from an old telephone test unit. Outstanding mechanism and a good feel make it enjoyable to use. Lower key is sub(!) miniature with incredibly fine mechanism. Both keys have good on-the-air QSO records to prove their merit.

special. It is hand made of brass mounted on phenolic, and measures only 1 by .3-inch: small enough to carry (wrapped up!) in a matchbox! Tiny (tiny!) screws are used at the fulcrum, gap and also to adjust the microscopic tension spring. A ground-down button is used for the knob. I christened this key by clip-lead wiring it to my "big rig" and used it to work 3B8CF in the Indian Ocean. I can thus say this smallest-of-all key has worked the longest distance possible.

Who Do and Homebrew

Origin of the upper miniature in Photo 5-4 is unknown, possibly because its producer is still chuckling. Ah, but it is a professionally-made item that really works. The arm's tension spring is made into the pivot bracket, and travel is not adjustable. Just press down on the knob until the arm mates with the contact below it. The knob's mount is also flexible, providing quite a bit of fun wobble during use. Note full assembly is mounted diagonally on

diagonal-cut base. Whew!

Okay friends, you can quick-make your own copy of the lower mini key in Photo 5-4 using a tv balun and pushbutton. Check with your local electronics supply company for those items. Alternately, get a balun and substitute pushbutton from a nearby Radio Shack. Pry open the balun by lifting its little plastic tabs on each side, then remove the balun case's "innards" and metal tv plug assembly. Enlarge the molded plug section using a round file, then friction-fit the pushbutton in place (try to select a smooth-action pushbutton when purchasing). Finally, wire the pushbutton's contacts to the balun's screw lugs, snap the case back together, and start making a second key for a friend (They make neat ham gifts!).

World's Smallest Available New-Now Pumper?

Need a real treat and surprise to

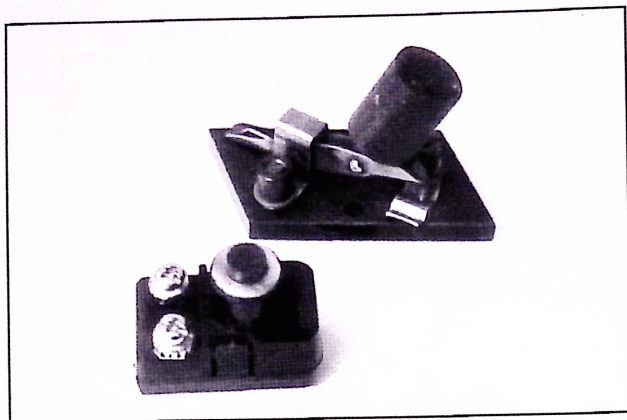


Photo 5-4 Two guaranteed-to-please funky li'l keys! Upper item has made-that-way wobbly knob, and sits diagonally on diagonal base. Lower item is homebrewed from a plug-in TV balun and parts store-obtained pushbutton.

brighten your life? Check out the ultra-miniature (1-inch square!) pump key being made today by Gordon Crowhurst, G4ZPY (Photo 5-5). That's right: you can order this tiny ticker now and use it with your QRP rig on your next weekend outing!

The mechanism is highly polished brass, and sits on a mahogany-looking paraxol base. The bottom has a thin green felt pad for a smooth feel. Both tension and gap are adjustable (loosen knob skirt and

rotate knob to vary gap/travel). Tiny binding posts are used for wire connections. This gem is as delightful to use as it is to see. Our compliments to G4ZPY on making a classic super miniature! (G4ZPY's address is 41 Mill Dam Lane, Burscough, Ormskirk, Lancs, England L40 7TG)

Miniature Iambic Paddle

I continuously talk with amateurs

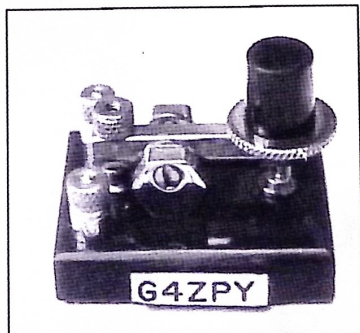
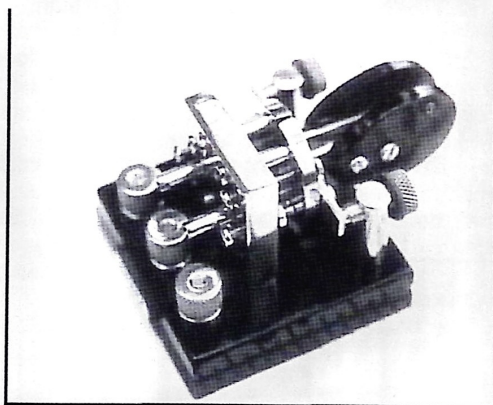


Photo 5-5 G4ZPY's elite, petite and available right now "Baby" pump key. It measures 1-inch square and works great.

across the nation and around the world about CW and keys, and the miniature paddle shown in Photo 5-6 is one of today's hottest subjects. This palm-size beauty is hand made by G4ZPY, it measures only 1.5 inches square, and has the feel of a top-notch full-size paddle. The mechanism is highly polished brass, with chrome springs and screws, and sits on a glazed black base with a rubberized magnetic bottom. The paddle can thus be snapped onto a rig's case, metal leg strap, etc. for use anywhere or any time. Dot and dash gaps are adjustable via contact screws inside

rather than hunting a "rare" for a year. But continue hunting while enjoying the newbies." Miniatures are like potato chips: difficult to stop with just one. Go for a bunch! You will love them!

Photo 5-6 The famous G4ZPY miniature iambic paddle. This available-now delight has terrific action and it is the perfect mate for a portable or QRP rig.



knurled lock nuts beside each fingerpiece. Tension for each lever is adjustable via slotted tubes extending out the yoke's back (facing binding posts). Gordon/G4ZPY often has a backorder list going for this paddle, as he strives for perfection in assembly and engraves an owner's call letters atop the yoke. Each paddle is truly a work of art!

Conclusion

Are miniature keys (and paddles) not absolute heartthrobs? Wow! I know you are anxious to get one or two for QRP, mobile, or vacation use: that is why our last two featured items can be purchased right now

CHAPTER 6

NEW KEYS AND PADDLES

Although seldom apparent when quick-visiting a local radio dealer or thumbing through monthly magazines, a fascinating selection of keys and paddles are available to amateurs today. Many of these items are works of art in brass, chrome and gold, some are bold and dazzling, some are small and petite, some are unique in design, some are beautifully classic, and all are terrific CW interest boosters. Ah, but the unfamiliar amateur typically settles for a generic hand key or basic paddle rather than one best suited to his/her personality and CW fist. Why? The only reasons I can surmise is because dealer salespeople must be familiar with a wide variety of products rather than specializing in a low profit area (no, a key is not just a key), and many key makers cannot afford expensive advertising campaigns. As a result, too many amateurs never realize the key of their dreams is

readily available. Revealing that fact is the purpose of this chapter. Helping you determine exactly what type key, bug or paddle best fits your fist is part of an additional "emporium service" I am striving to provide after writing this book. This service could easily get out of hand, so I must ask you to be brief and precise with your inquiry, state your CW preferences and budget, leave room for (my) on-letter comments, and include a Self Addressed Stamped Envelope for reply. Fair enough?

One more point warrants mentioning here: having more than 2 (or 2 dozen!) new keys or combination of new keys, paddles and classic bugs is not foolish or frivolous--it is fun, fun, fun! Well-made keys, bugs, and paddles are also similar to beautiful autos like Corvettes (on a much lower financial scale, of course!): they maintain and increase in value with age. Who knows, that neat paddle you buy today may

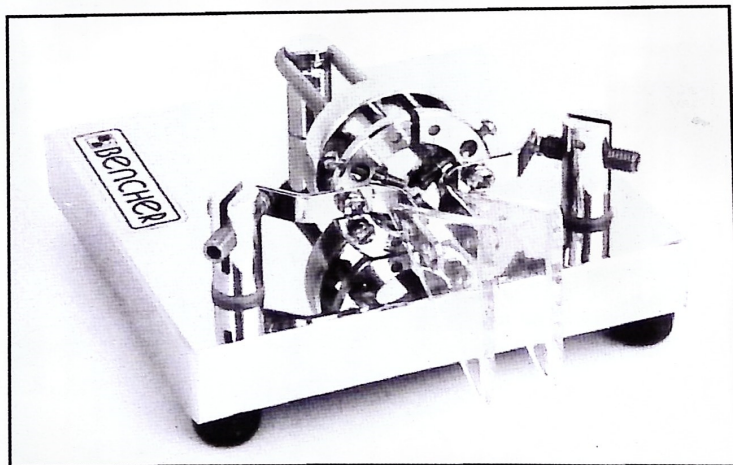


Photo 6-1 The popular Bencher By-2 dual lever iambic paddle. Item is available in all chrome, chrome mechanism on painted steel base and gold plated versions. A similar non-iambic/single lever model (ST-2) is also available.

be a prized collectable in the future. Maybe you should include it (and your other keys) in your Will. That is enough chat. No, let's get into the views. I do not wish to relate any favoritism here, so the presentation is arranged in alphabetical order. Also understand there are dozens of keys presently being made and including all of them was impossible (maybe that will be "Keys IV; a special treat is now in the works for "Keys III"). My apologies to anyone and everyone making a key, but not featured herein. Exclusion in no way reflects prejudice. Send us your information and we will include it in later reprintings, etc. Now, enjoy the "key vues!"

Bencher

A well-known manufacturer of readily available paddles in the United States is Bencher, and their popular model BY-2 is shown in Photo 6-1. This iambic paddle has a round yoke supporting a split ring to which dual and independently operating arms are attached. Each arm's gap/travel can be set independently. The paddle features self-adjusting needle bearings and gold plated contacts. A single lever/non-iambic version, the ST-2, is also available.

The ST-2 differs in its use of a single piece ring rather than a split ring. Both models are available in standard chrome-on-painted base, deluxe all-chrome, and gold plated models.

Completing their line of CW items, Bencher recently introduced a sleek and low slung hand key that really glitters. This model RJ key is shown in Photo 6-2. The key's arm is wide and flat, with an artistic flair at its pivot point. Permanently oiled bearings are mounted inside the pivot blocks, and clearance between those rectangular blocks and the arm is quite fine. Notice there are three rather than the usual two adjustment screws on the key's arm. The rear screw varies travel, the middle screw varies tension, and the closest-to-fingerpiece screw varies contact spacing. By adjusting the front and rear screws in tandem, you can thus vary the key's knob height with reference to a desk. Neat! For more details on these keys and paddles, write Bencher at 333 West Lake St., Chicago, Illinois 60606.

The Galbraith Paddle

Until recently, keys and paddles from New Zealand were basically unknown in the

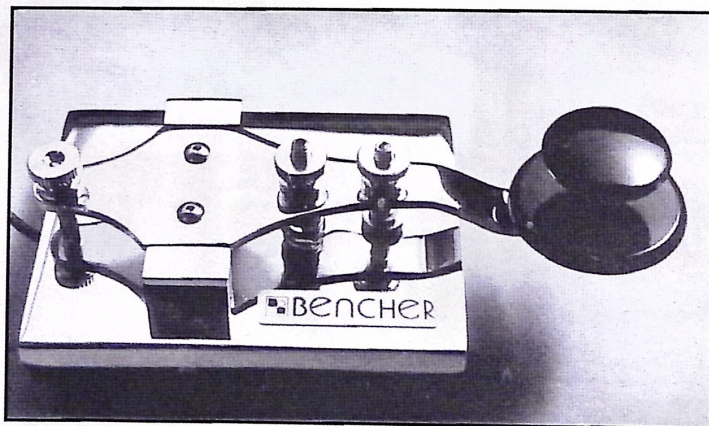


Photo 6-2 Bencher's new style "RJ" hand key. Item is all-chromed with black knob, sleek and ultra modern.

U.S.A. We realized amateurs in this land "down under" were good CW operators, but precious little information regarding their paddles was available. Then during 1992, Galbraith Projects of P. O. Box 1733, Christchurch, New Zealand announced their dual lever iambic paddle (GK-11) could be direct mail-ordered from the United States. Further, the paddle's cost was less than many domestic versions. That was quite a surprise, as most items in New Zealand are quite pricey!

The GK-11 paddle is shown in Photo 6-3. The mechanism is built into a small wraparound enclosure with contacts protected inside one end and fingerpieces extending from the other end. Adjustments for arm travel and spacing are set by screws on the enclosure's left side. A spring force-fit into notched areas between/inside the fingerpieces can be moved to vary tension. The paddle's enclosure has threaded holes on all sides to permit mounting in a wide variety of ways. The paddle may thus be purchased in basic form. The enclosed section supported between the black uprights in Photo 6-3 or

as a complete and ready to use paddle mounted on a black glazed steel base. For more details, write Galbraith at the previously shown address.

G4ZPY Paddles and Keys

A captivating line of paddles and hand keys is presently being made by Gordon Crowhurst/G4ZPY in England, and each item is a genuine work of art. Gordon's paddles and keys have very precise adjustments, look like jewelry, and handle like silk. G4ZPY's paddles and keys are hand made with emphasis on pride rather than mass production, so there is often a waiting list (especially on his miniature iambic paddle featured in the previous chapter). Any of Gordon's items, however, are worth the wait.

G4ZPY's most popular paddle is the twin lever VHS iambic shown mounted atop an optional electronic keyer in Photo 6-4. If the paddle is purchased separately, it is fitted with oval fingerpieces. If combo-ordered with his keyer, larger and curved-to-perfection fingerpieces are included. The

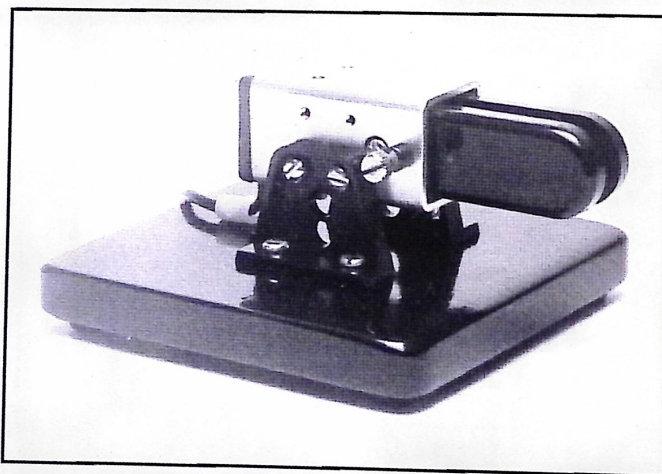


Photo 6-3 The Galbraith GK-11 dual lever paddle. Item is made in New Zealand, basic in design, inexpensive and may be purchased with or without its mating base.

paddle sports a highly polished brass mechanism with chrome screws and springs, and reminds me of a miniature Gatling gun. The mechanism is fitted with non-flexible brass arms, thick fingerpieces, and mounted on a thick steel base. Dot/dash contacts are silver-to-silver, with fine-thread adjustment screws. Tension for each lever is independently adjustable by slotted rear extension tubes. This key is exceptionally rugged, and built to take "fist pounding" synonymous with high speed operation. The VHS iambic is available with a brass, chrome, silver or gold finish. An economy version of this dual lever paddle is also available. It is similar in appearance, but has lighter duty contact arms and fingerpieces (similar in thickness to those on a Benchner).

The optional keyer operates from any 6 to 15 VDC source, keys positive or negative lines, fits in a pocket, and is adjustable in speed from 6 to 60 w.p.m. It includes iambic or non-iambic operation

and dot/dash memory. I use one with a 9 volt battery for portable operations, it works great, and battery life is quite long.

For non-iambic operators, G4ZPY has the unique single lever paddle shown (also with optional keyer) in Photo 6-5. This gem's arm comes preset to 3 thousandths of an inch dot/dash contact clearance, and is touch-sensitive. Adjustments can be user-reset. Arm tension is also adjustable by the rear spring. This key has a "magic feel" and is exceptionally nimble at high speeds.

G4ZPY also makes a traditional British style hand/pump key with permanently lubricated pivot bearings, top hat-type knob, and octagonal-shaped arm (Photo 6-6). The workmanship in this key is superb. The key is available in 22 kt. gold, silver, chrome or brass, with a mahogany base or lakestone (Heathkit green) base. An economy version is also available in kit form. For more information, contact Gordon Crowhurst, G4ZPY, 41 Mill Dam Lane,

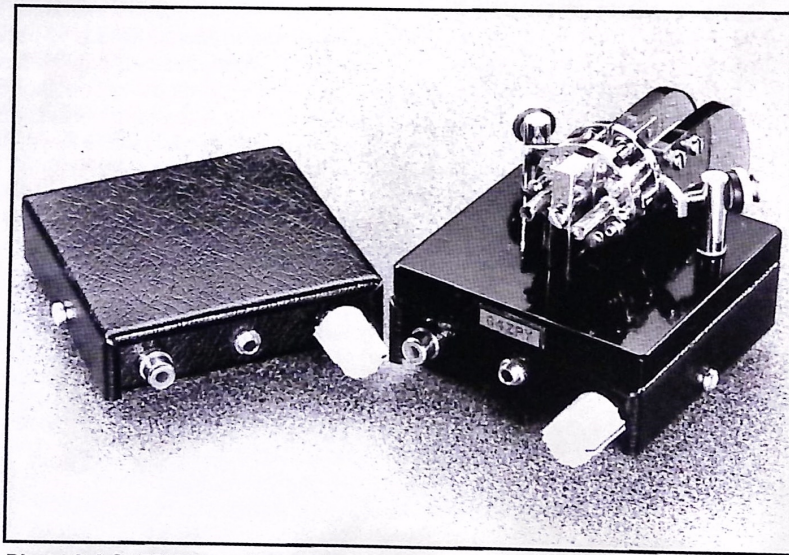


Photo 6-4 G4ZPY's popular twin-lever VHS iambic paddle. Item is shown mounted on optional electronic keyer (also available separately) and fitted with curved-down fingerpieces. Paddle handles as good as it looks.

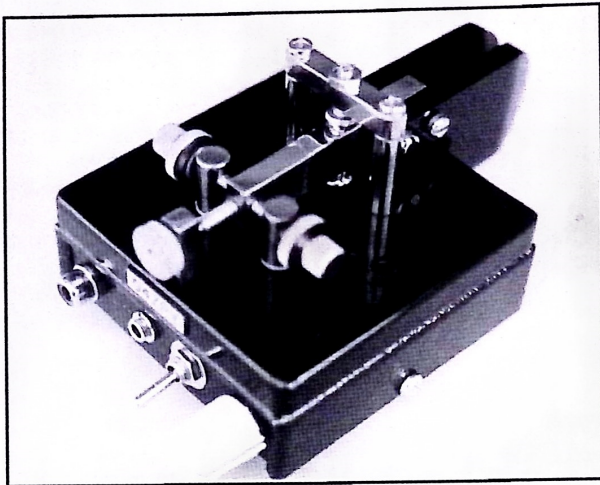


Photo 6-5 G4ZPY's unique single lever/non-iambic paddle. Item is available with mating keyer or as stand-alone paddle.

Burscough, Ormskirk, Lancs, L40 7TG, England (telephone 044 1704 894299). G4ZPY key brochures and price lists, incidentally, are also available in the United States by sending a **large** Self Addressed envelope with two stamps on it to your author, K4TWJ, 4941 Scenic View Drive, Birmingham, AL 35210.

Hi-Mound Keys

As discussed in my previous "Keys, Keys, Keys" book, Hi-Mound is a very popular name in Morse keys and paddles throughout Japan. Indeed, only Hi-Mound and Vibroplex continue producing bugs today. Hi-Mound items were not available in the United States when I wrote Keys, Keys,

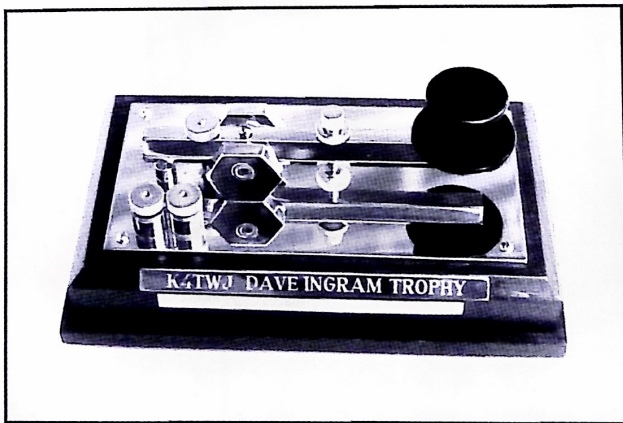


Photo 6-6 Solid gold model pump key made-to-order by G4ZPY. Photos cannot capture the full glamour of this gem. It is beautiful!

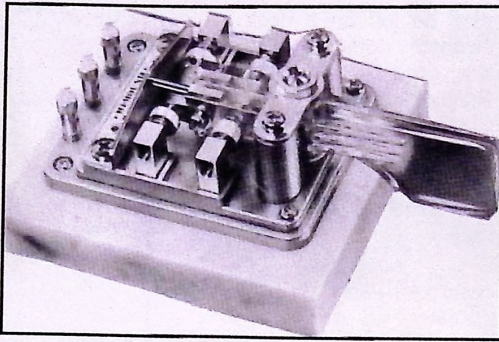


Photo 6-7 Hi-Mound's model MK-705 dual lever paddle. Item features chrome mechanism, marble base and removable clear plastic dust cover.

Keys. Since that time, however, Mike Zbrozek, K8XF of 9929 Fox Squirrel Drive, New Port Richey, Florida 34654 has imported a limited number of their most popular models. If U. S. interest warrants, more varieties of Hi-Mound keys may become available later.

Hi-Mound's most well-known model iambic paddle is the MK-705 shown in Photo 6-7. This clear plastic-topped item has dual levers with separate close-spaced fingerpieces, ball bearing suspension, gold contacts, and gap plus tension adjustments for each lever. Its silver and chrome mechanism sits on a marble base fitted with small rubber feet to hold it in place. This key has a good feel, and its close spaced fingerpieces seem ideal for CW operators trying to make the transition from a single to a dual lever paddle.

Hi-Mound's HK-702 shown in Photo 6-8 is a deluxe hand key any amateur would be proud to own. It measures 3.5 x

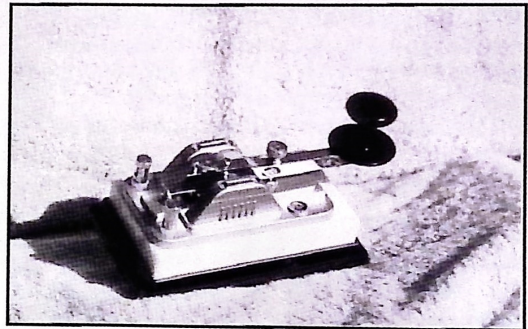


Photo 6-8 The Hi-Mound HK-702 hand key combines chrome, silver and marble in perfect harmony. Oriental classic also has snap-off dust cover.

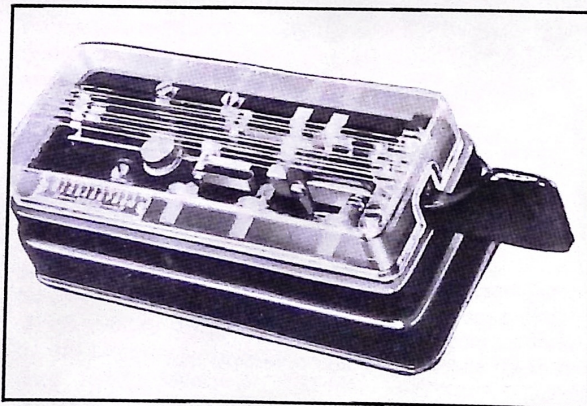


Photo 6-9 Neat BK-100 Hi-Mound bug. Item is strikingly similar to famous Johnson and Skilman bugs of eras past. It is a rugged item with good semi-automatic action.

3.6 x 5.75 inches, weighs 2.2 pounds, and has a beautiful chrome and silver mechanism set on a glazed marble base. A rubber cushion is fitted around the base edge for solid "stay put" footing on a desk. The key has silver contacts, easy adjustments for gap and tension, a skirted knob, snap-off dust cover (no more dirty mechanisms!), and a very smooth feel during use. It is quite nice.

Finally, Hi-Mound's model BK-100 bug is shown in Photo 6-9. This delight is set into a black plastic base fitted with molded metal weights and a solid hold-in-place rubberized bottom cushion. Contacts and adjustments face inward inside the base, and the full mechanism is protected by a clear dust cover. A small hole is included on the bug's right side for routing a connecting cable to a rig. The BK-100 sports a single fingerpiece, has a wide dot speed adjustment range, and produces some pleasant "bug chatter" during use. Not only is this bug nice and rugged, it can

also be left on a desk without worry of "scratchy dots." Its plastic top cover solves the problem! A fascinating variety of additional paddles and pump keys "round out" Hi-Mound's line but since the extent of their availability is unpredictable, including photos and info was not logical when preparing this book. Contact Mike, K8XF, for additional details on Hi-Mound items.

The Mercury "Super Paddle"

This one-of-a-kind paddle is custom-made by Steve Nurkiewicz, N2DAN/4, a noted machinist now retired and living the good life in Florida. Steve makes these Mercurys in his basement workshop on a strictly spare time basis, and they are definitely in a class of their own. The paddle is built to withstand incredible abuse and last at least three lifetimes, yet it handles like a dream. This gem is not low in cost and there is usually a waiting list on orders, but such are the requirements for

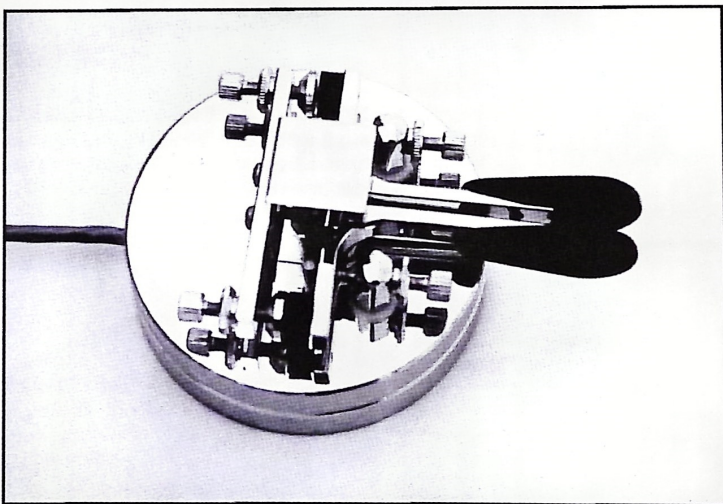


Photo 6-10 The dazzling triple chrome-plated Mercury "super paddle" made by Steve Nurkiewicz, N2DAN/4. This masterpiece is built like a battleship, handles like a sports car, features precise bearings, magnetic tensioning and rhodium-coated silver contact. Item has so much sparkle, glitz and reflectivity that photographing it is almost impossible.

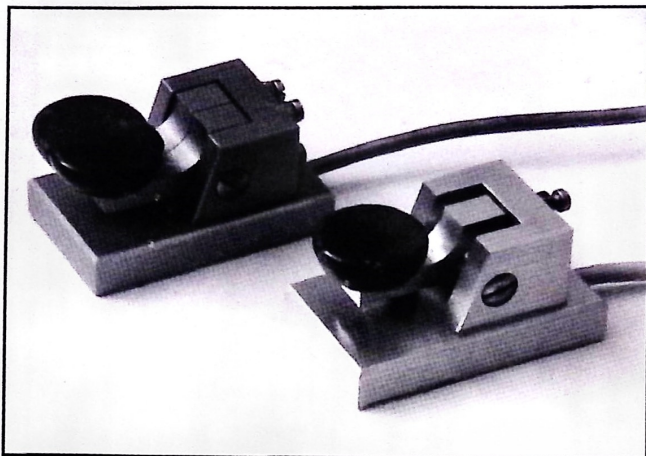


Photo 6-11 DK1WE's recently introduced miniature novels for portable and mobile operations. Twinky (top) is dual arm iambic "pumper" based on "cricket" concept. Minky is a miniature hand key. Both are unique.

owning the best. We are talking about an heirloom paddle serious CW devotees cherish and even include in their Will!

Each Mercury is made from a four pound block of solid brass. The base and all upper parts are cut, triple polished, then triple chrome plated. The paddle has large and ultra-strong dual levers, super precise bearings, and uses Alnico magnets to produce a positive snap-like action. The contacts are solid silver with rhodium plating and capable of handling anything from a solid state electronic keyer to a microwave oven converted for moonbounce operation. A new owner's call letters are engraved on the base and the paddle is on-the-air tested before shipping to ensure everything is perfect.

My own paddle is shown in Photo 6-10, and its feel during use is exquisite. Unlike most magnet-tensioned paddles, this one has real personality and super-smooth action that even surpasses springs. Needless to say, both ham and non-ham shack visitors are immediately captivated by the Mercury's brilliance. Want to order your own Mercury? Contact Steve Nurkiewicz, N2DAN/4, 1385 Abner St., Port

Charlotte, Florida 33980.

Minky and Twinky

Say you would like something slightly off the beaten path for portable and mobile CW operation? Check out the new Twinky and Minky (pronounced Twin-Key and Men-Key) being made by DK1WE and shown in Photo 6-11. These little tykes measure only 2.5 by 1.5 inches each, thus qualifying as miniatures. The keys are made of high strength aluminum, have internally set ball bearings, plus separate rear adjustments with locknuts for gap and tension. An angled lever design is used to reduce arm length while maintaining a good feel and, after using a Twinky, I must say the concept works quite well. Each key is fitted with a polished wood knob and integral cable. Minky is a miniature hand key with traditional German designs apparent. It is quite rugged, and also a nimble critter that goes almost anywhere. It is good for backpacking, and a genuine conversation piece.

Twinky is a miniature dual lever (iambic) paddle with arms that move

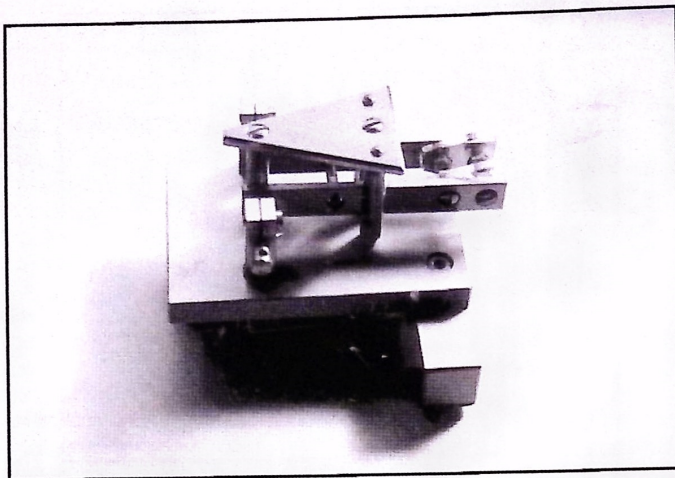


Photo 6-12 The dual lever Schurr "Profi" model paddle. Item is made in Germany, marketed by DL7NS and is top quality throughout.

vertically rather than horizontally. Look close at the photo, and you will see its knob is actually two separate halves. Dots and dashes are transmitted by alternate finger action: the classic "cricket" concept. Not only is Twinky a real attention grabber, it is also handy for rough road mobiling where usual paddles will not "stay put" during use. If you have never experienced the "cricket" method of sending code with your index and middle finger, incidentally, you have missed a novel treat. It is challenging at first, but fun! Additional information on Twinky and Minky is available from Englmar Wenk, DK1WE, Hubenring 4, 88048 Friedrichshaven, Germany.

Schurr Keys and Paddles

This well-known line of hand made keys and paddles is produced by an expert German machinist named Schurr, and distributed by his agent, Klaus Gramowski, DL7NS. Each item reflects German quality and workmanship, being precise in adjustments and exceptionally smooth during operation. They are very nice!

Schurr occasionally gets behind in manufacturing, but "waiting time" is not excessive. A special little extra touch is also included with each Schurr key: a gold and white "hand made in Germany" tag complete with gold ribbon is packed with new items.

Schurr's popular model of dual lever iambic paddle is called the "Profi" and shown in Figure 6-12. Original versions of the Profi had a brass mechanism mounted on a painted steel base; newer models are all brass. The Profi's brass finish is diamond-ground to a sparkling lustre and then "zaponierung-coated" to prevent fading and corrosion. Each paddle arm is a single piece of brass with a center opening through which hardened steel vertical pins are fitted. The pins then mate with sockets in the paddle's triangular-shaped main assembly for pivoting. Dot and dash contacts are positioned on each side of the triangular assembly, and fitted with fine-thread screws for adjustment. A spring mounted between the paddle's arms is used for tensioning. Overall action is clean, positive, and very nimble. A "mini" version of this paddle, consisting of the main

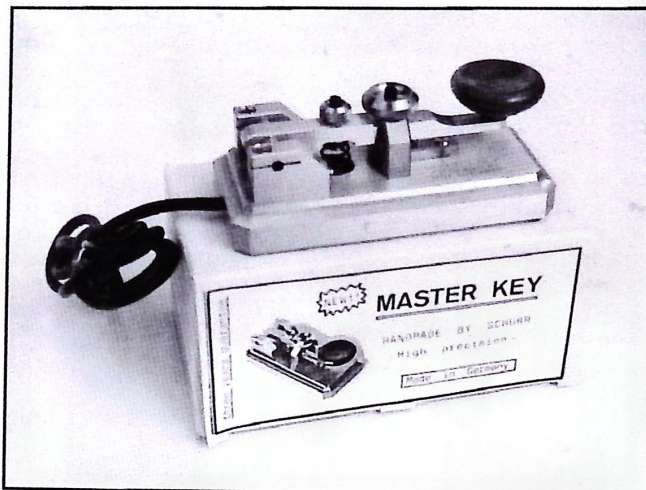


Photo 6-13 New style Schurr "Master" key is updated version of pocket-size "Mobile" key featured in our previous "Keys, Keys, Keys" book. Item has very good feel during use.

mechanism with its arms, contacts and fingerpieces is also available for mounting on a base or in an enclosure of your choice.

Another hot item from Schurr is the pocket-size "Master" hand key shown in

Photo 6-13. This new version of Schurr's well-known "Mobil" key featured in "Keys, Keys, Keys" is diamond-polished and zaponierung-coated brass with a rear-pivoting arm and new-style beveled edge base. Adjustments for tension and gap are

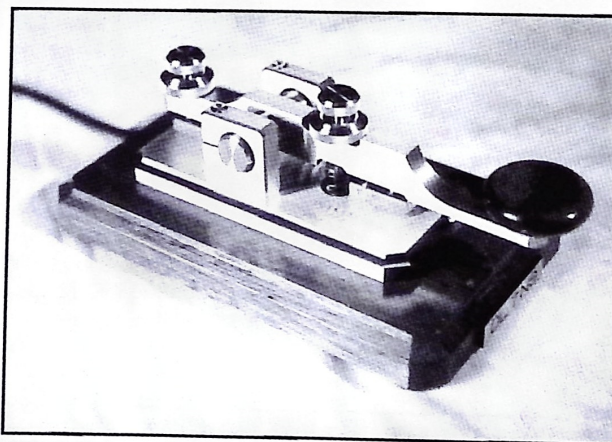


Photo 6-14 Schurr's full-size "Ultra Champion" hand key sports glazed brass mechanism with permanently lubricated bearings and sits on a polished mahogany base.

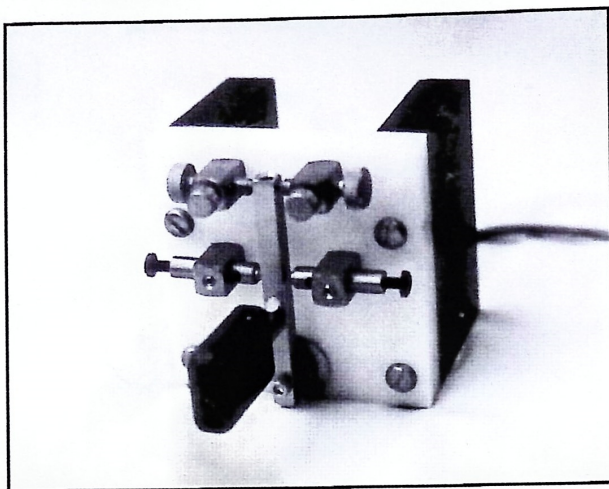


Photo 6-15 The unique Vertical Single Lever paddle custom-made by Stan Hails, W9WBL. This one-of-a-kind eye catcher conforms to natural wrist movements and results in a quite impressive item.

very precise, overall feel during use is superb, and the key is also quite rugged. This delight measures 3.5 by 1.5 inches,

has a cherrywood knob, and rates as one of today's top hand keys.

Schurr also makes a full-size pump

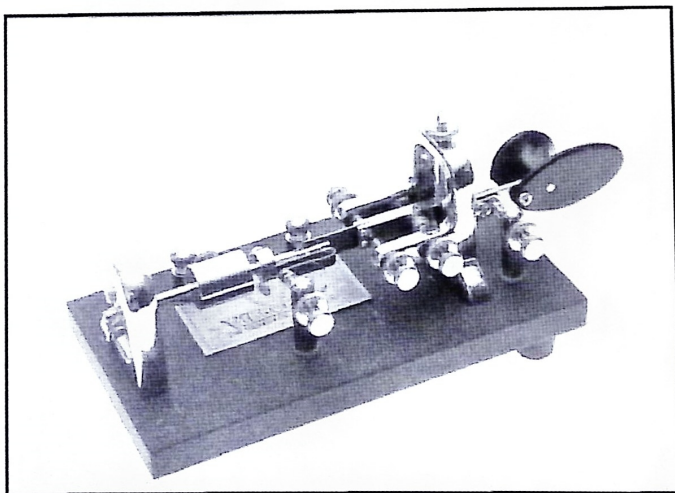


Photo 6-16 Vividly reflecting both telegraphic history and modern CW pride is the world-famous Vibroplex "Original" model bug. Item is presently available in standard, deluxe and presentation versions.

key; it is the "Ultra Champion" shown in Figure 6-14. This showpiece is also diamond-ground and zaponierung-coated brass and mounted on a polished mahogany base. Permanently lubricated and sealed bearings are set into the center fulcrum, and fine thread adjustments are included for gap and tension. This key measures 6.7 by 3.5 inches, and handles as good as it looks. Additional information on Schurr keys and paddles is available from Klaus Gramowski, DL7NS, Kaiserin-Augusta, Allee 91, D-1000, Berlin 10, Germany.

Vertical Single Lever Paddle

Another unique paddle with special appeal to fans of classic vertical bugs is shown in Photo 6-15. This Vertical Single Lever paddle is made by Stan Hails, W9WBL, and to the best of my knowledge, it is the only vertical paddle made today. Stan points out it handles better than horizontal paddles, as it minimizes errors caused by natural changes in horizontal finger position during use. This effect is most obvious when using the cylindrical fingerpiece supplied with the paddle, but the smooth feel of its extra (and included) flat fingerpiece makes deciding on the "best" fingerpiece quite challenging! The VSL also occupies miniscule desk space (2.5" x 3"), which is a nice benefit in crowded setups.

The VSL's working parts are polished brass mounted on a 1/2-inch thick section of plexiglas. The side "uprights" are steel for solid footing, and the paddle's overall "stay put" weight is 2.2 pounds. The main arm is supported by a bottom pivot point with dual ball bearings. Notice the fingerpiece is mounted above that point, so the arm's movement does not "reverse directions" like a regular paddle. The left contact is thus wired for dashes and the right contact is wired for dots. Arm travel and tension for both dots and dashes is fully adjustable, and tiny nylon balls are

even included between set and lock screws to prevent burring threads. Key contacts are 70 percent gold. Look close at the main arm, and you will notice a white nylon "filler" in a threaded hole right above the fingerpiece. The filler and fingerpiece can be position-swapped as desired to mate with an owner's hand. Finally, this paddle is supplied ready to use with a 3-ft. flexible cable and preinstalled plug (with screw terminals for easy rewiring). For more information, contact WBL Design, 6345 Coffman Road, Indianapolis, IN 46268-2591.

Vibroplex

As mentioned in Chapter 2, this world-famous manufacturer of keys and the oldest name in amateur radio was recently sold by Peter Garsoe in Portland, Maine to Felton Mitchell, WA4OSR, in Mobile, Alabama. This is the first time Vibroplex has had a dedicated radio amateur at the helm, and some exciting expansions are being implemented even as this chapter's information is being written. As I said earlier in Chapter 2, new owner Mitch is a real live wire. First, Mitch upgraded Vibroplex machinery to more modern and exacting standards. Then he enhanced the chrome plating process for greater lustre and dazzle. Next, he announced the return of ever-popular black bases and radiused (rounded) edges. Now, he is developing a super precision hand key to complete the line. Vibroplex is being revitalized with a vengeance! Whew!

Spearheading the Vibroplex line and continuing in production as the key that started the craze is the "Original" model bug shown in Photo 6-16. This 1995 model of H. G. Martin's first Vibroplex is available in a "Standard" version (triple-chromed parts on a black base), "Deluxe" version (all chrome with red fingerpieces and jeweled movement), and "Presentation" version (all chrome, jeweled, and a gold base plate). As discussed in Chapter 2, this semi-

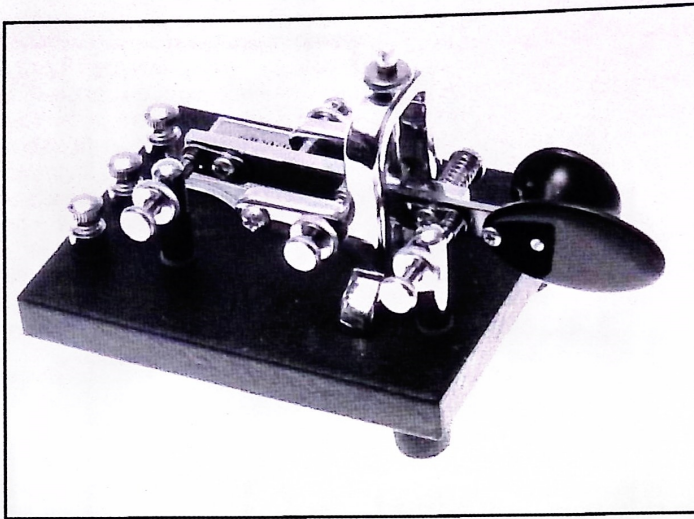


Photo 6-17 The Vibroplex single lever "Vibrokeyer" is super-easy to operate and handles great. It is available in standard and deluxe versions.

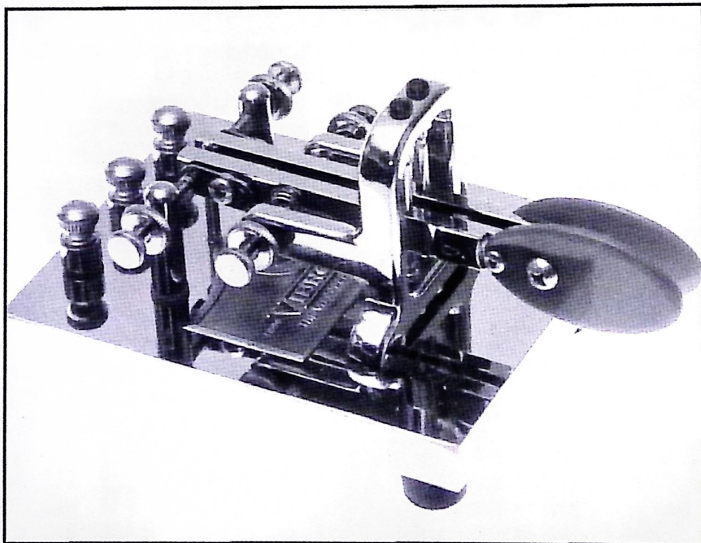


Photo 6-18 The popular Vibroplex "lambic" dual lever paddle. "Squeeze key" action and ultra-nimble levers that can be individually adjusted to preference make this item a delight to use.

automatic key has a full complement of adjustments to fit any operator's

preference. Vibroplex's "Original" (any version!) is truly the mark of a big-time CW

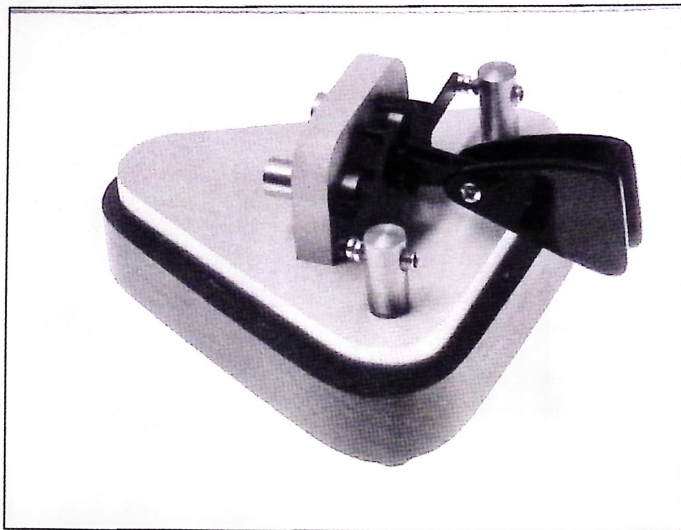


Photo 6-19 Two styles of compact Brass Racers are also hot Vibroplex items. One is a compact paddle, other is complete stand-alone paddle and keyer. Both styles are all brass and use magnets in lieu of springs for tensioning.

enthusiast. Even operators who use only hand keys or paddles have one in their shack for classic flair.

Next up is the famous "Vibrokeyer" shown in Photo 6-17. This is a single lever and non-iambic paddle built similar to the Original model bug, but less vibrating pendulum and including separate dot/dash contacts. This paddle is especially recommended for newer CW operators and old pros who use bugs, as only dots or dashes are made with each wrist movement. The Vibrokeyer is available in a "standard" (black base) or "deluxe" (all chrome with red fingerpieces and jewel movement) version. Both versions include independent and fine adjustments for dot/dash lever travel and tension.

Almost outshining our roaming spotlight is Vibroplex's popular "Iambic" model paddle shown in Photo 6-18. This magnificent item has dual and independently operating levers for dots and

dashes, both being supported by a yoke with twin pivot points. Tension and travel for each lever can be set as desired. That is combined with fine pivot points and fine thread adjustment screws, resulting in a paddle with a superb feel and exceptional speed capability. The "Iambic" is available in "standard," "deluxe," and "presentation" versions.

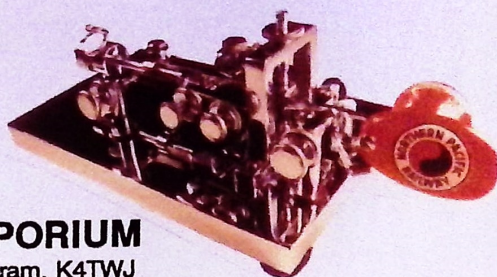
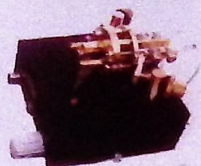
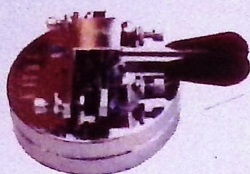
Vibroplex also makes two styles of Brass Racers: the model EK-1 which is a compact and all brass dual lever paddle, and the Brass Racer Iambic which is an EK-1 with custom keyer built into its base. Both models differ from other Vibroplexes in their use of magnetics rather than springs for tensioning. The 'Racer Iambic uses a well-known Curtis 8044 keyer chip, and it will key positive or negative voltage lines. A Brass Racer is shown in Photo 6-19.

For more information, contact The Vibroplex Company, Inc., 11 Midtown Park,

E., Mobile, Alabama 36606, or telephone 1-800-840-8873.

Summary

In conclusion, I must again re-emphasize the previous views of presently available keys, bugs, and paddles do not (indeed, cannot!) include everything being made today. Smaller producers often spend more time perfecting their brainchilds than "exposing" them (often because of high advertising costs). That does not necessarily mean such items are second rate, however; they may actually be superior. If you make such an item or items, let us know so we can include information in future printings plus help you with sales through the emporium. Finally, and once again, I emphasize including an SASE when writing me on "key subjects." Now toss out that old microphone, fire up your rig with a glamorous new key, bug or paddle, and start enjoying some genuine classic amateur radio fun! I will be looking forward to QSOing each and every one of you in the near future! 73, Dave, K4TWJ

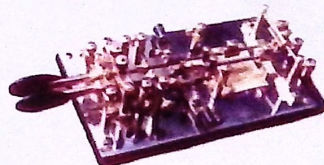
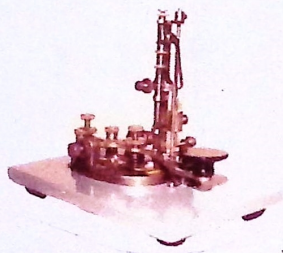


KEYS II: THE EMPORIUM

By Dave Ingram, K4TWJ

Imagine visiting a combination museum, collector's exchange post and new products showroom where the world's most famous, exotic and glamorous keys are on display for the first time. Add a personal guide describing each item in detail, side notes on production dates and price values, etc. and you have a nutshell preview of **"KEYS II: THE EMPORIUM."**

Look inside and the first-of-its-kind tour really gets exciting. There are views of telegraphy's first keys, all Vibroplexes from beginning to 1995, QRP keys, vertical bugs, a wind-up bug, 3-lever bug, cricket paddle and much more. Whether you operate SSB or CW, use a key only for checking rig power or avidly collect keys of all types, you will love **"KEYS II: THE EMPORIUM."** It is an all-out effort that opens an all-new dimension in CW enjoyment!



World-reknown author and CQ magazine columnist, Dave Ingram, K4TWJ, is one of the most well-known and respected figures in Amateur Radio today. He has been intensely active in all areas of Amateur Radio for over 30 years and his enthusiasm is irresistibly contagious. Dave has taught college electronics and broadcast engineering, plus he's written over 400 articles and 16 books about Amateur Radio. Watch for even more from this noted author.

